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THE HISTORY OF THE PNEUMOCOCCUS AND PNEUMOCOCCUS INFECTIONS.

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Baltimore.

READ AT THE MEETING OF THE SECTION ON CLINICAL MEDICINE AND SURGERY, MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, NOVEMBER 17, 1905.

THE history of the discovery of the pneumococcus presents so many points of interest to us, both from the early obscurity that involved it and from the fact that some of the original investigations of the organism were performed in Baltimore, that it seems not inappropriate at this time to review the most important points in the development of our knowledge of the etiological agent of pneumonia. Originally discovered by Sternberg[1] in 1880 in the blood of rabbits inoculated with his own saliva, but originally described by Pasteur[2] January 18, 1881, the inexorable laws of scientific priority give to Pasteur, if not all, at least the larger share of the credit for the isolation of a new pathogenic micro-organism. Although the organism was obtained by Pasteur from the saliva of a child afflicted with rabies in December, 1880, it was soon found by the same observer in normal saliva. Neither Sternberg nor Pasteur thought that the micrococcus of sputum septicemia, as they both recognized it, was in any way associated with lobar pneumonia in man, although Pasteur suggested that it might prove to be of considerable importance in its pathogenic relationship. It may be stated in passing that Sternberg's earliest recorded publication was made in April, 1881, several months after the publication of Pasteur.

For a number of years such trained observers as Koch, Eberth, Klebs, and Friedlander had busied themselves with the study of

diseased lungs, and they undoubtedly had seen in pneumonic lung micrococci which we now recognize to have been pneumococci. The first definite and successful attempt to obtain from such sources bacteria in pure culture was made by Friedlander[3] in 1883. He succeeded in cultivating a capsulated organism from selected cases of pneumonia which he believed to be the etiological agent in this disease. We now know that the pneumococcus of Friedlander, as he called it, is in reality not a coccus, but a short bacillus, growing rapidly and luxuriantly at room temperature, and doubtfully to be considered as the true cause of genuine croupous pneumonia. Indeed, all the cases of croupous pneumonia thought to be due to the Friedlander bacillus must be studied far more carefully for the presence of the pneumococcus.

While Friedlander's conclusions have not been completely substantiated, nevertheless his observations are of great importance, as Dr. Welch[4] has pointed out, because he was the first one to obtain pure cultures of micro-organisms from hepatized lungs, thus stimulating investigation of the entire subject.

The etiology of croupous or lobar pneumonia was definitely cleared up in 1886 by the independent publications of Fraenkel[5] and Weichselbaum,[6] and we really owe to these two observers a large part of our knowledge of the *Micrococcus lanceolatus,* a knowledge which has held good for nearly two decades, its essential points being confirmed year after year by observer after observer, few new facts of importance being added until within the past two or three years.

Fraenkel, on his side, concluded that all the cases of croupous pneumonia were due to the pneumococcus, while Weichselbaum believed that a small percentage of such cases were due to other micro-organisms, and it is significant that in their latest publications both these authors adhere to their original opinions.

The micro-organism obtained by Fraenkel and Weichselbaum is a small diplococcus, under certain conditions assuming bacillary forms, which, from their peculiar shape, are known as *lanceolate.* Surrounded by a mucinous capsule in the animal body, readily demonstrated by precipitation with acetic acid, the method devised by Dr. Welch, the organism grows upon our ordinary culture media so feebly and scantily as to forbid prolonged cultivation in the laboratory. Its appearance upon flat media is practically identical with that produced by *Streptococcus pyogenes,* and when we recall the fact that its capsules are rarely demonstrated without great difficulty, when grown artificially, it is at once apparent how difficult and obscure the differentiation between the pneumococcus and a short-chained pus coccus becomes.

When freshly isolated from pneumonic lung the organism is frequently possessed of great virulence, especially for mice and rabbits, a small fraction of a cubic centimeter sufficing to produce a fatal septicemia within a few hours. In such cases the micro-organism is found in great abundance in the heart's blood, but also in the spleen, liver, and kidney. The virulence of cultures

rapidly dies out, however, and even if every effort be made to enhance it by passage through susceptible animals, the attempt to keep up the pathogenicity of the organism under artificial conditions usually ends in failure. Again, the cultures from hepatized lung are frequently of the lowest grade of virulence, and cultures taken from diseased tissue apparently swarming with pneumococci sometimes give but a few colonies, and these even are not capable of prolonged cultivation.

Since 1886 the *rôle* of the organism in the production of lobar pneumonia has been demonstrated by hundreds of observations, while the sphere of its activities has steadily been enlarged. Aside from its relation to lobar pneumonia, it causes many of the cases of broncho-pneumonia, many of the pleurisies attendant upon disease within the lobes, as well as certain varieties of pleurisy originating independently of these changes. It is found especially in endocarditis and pericarditis, in meningitis of both the sporadic and epidemic variety, in arthritis, in otitis, and rarely in appendicitis and peritonitis.

Indeed, it would be difficult to find any micro-organisms, with the exception of the tubercle bacillus, which is responsible for more pathological change in man than the pneumococcus of Fraenkel.

The main facts demonstrated by Fraenkel and Weichselbaum have never been disproven, while the problems they left unsolved have baffled solution until within the past year or two. The difficulty of differentiating the pneumococcus from the *Streptococcus pyogenes,* the absence of capsules in artificial culture of the pneumococcus, their occasional presence in cultures otherwise typical of streptococcus, the relation of the organism to experimental pneumonia in animals, a pneumonia which should be so typical in its histological features as to satisfy the pathologist, and not merely the bacteriologist—all these questions offered a fertile field for investigation. Add to these problems the questions which naturally arise from our present extensive knowledge of toxins and antitoxins, of agglutinins and of bacteriolosyns, and it becomes at once apparent why such a wealth of accurate observations upon this organism have appeared in scientific journals during the past five years.

From the standpoint of systematic bacteriology the most important recent investigation on this subject is that of Dr. Philip Hansen Hiss[7] of New York, who has devised a special culture medium, by the use of which the pneumococcus can be differentiated from the streptococcus.

This medium consists of a mixture of ox serum and water, to which inulin, a complex sacchardid, obtained in the greatest purity from dandelion root, is added. The growth of the pneumococcus in this medium suffices to decompose this inulin, with the production of sufficient acid to coagulate the serum, while the streptococcus has no such effect. In this special medium we have a ready and accurate method of differentiation between the two organisms.

The earliest attempts to produce pneumonia in animals by *intravenous, subcutaneous,* and *intraocular* inoculation of the pneumococcus invariably resulted in failure, the animals dying of a true septicemia. Intrathoracic inoculation, however, proved successful for Talamon[8] in 8 out of 20 rabbits, while Weichselbaum[9] and Gamaleia[10] produced in dogs and sheep a condition described as diffuse or lobar pneumonia in type. Intratracheal injections as well, in rare instances, were followed by pneumonic lesions in the experiments of Salvioli,[11] and of Kruse and Pansini,[12] and in those of Tschistovitch.[13] None of these experiments were convincing, however, because of the insufficiency of details concerning the anatomical changes found in the experimental animals, while the vast majority of the experiments proved failures when normal animals were employed.

In predisposed animals—animals whose resistance had been lowered by the inhalation of noxious substances, by trauma, and by prolonged exposure to cold—lesions closely simulating true pneumonia, if not identical with it, were produced most successfully by Gamaleia,[14] who employed virulent pneumococci for the purpose. In the majority of instances, however, the inoculated animals died of septicemia without visible changes in the lung.

The most recent attempts to produce experimental pneumonia with the pneumococcus are those of Wadsworth[15] in New York. He employed pneumococci of both low and high virulence and various methods of making his inoculations—*subcutaneous, intravenous,* and *intrathoracic.* With normal animals all these methods with virulent and avirulent strains of the pneumococcus proved ineffectual. Tracheal injection led at times to the production of a few typical patches of pneumonia. The results were by no means constant, organisms of low virulence causing no damage to the intact lung, those of high virulence leading to a rapidly fatal bacteremia, the areas of pneumonia apparently following the injection of the organism of just such a nice degree of virulence as would cause the proper reaction on the part of the animal. With animals whose resistance to infections was lowered by such poisons as phenylhydrazin the inoculation of the pneumococcus produced merely a rapid fatal infection, while in rabbits whose resistance was lowered by exposure to cold in ice-cold baths, in three fatal cases two animals showed in their lungs typical areas of red and gray hepatization, conformable in all respects with the lesions seen in man.

Finally, Wadsworth immunized a series of animals by increasing injections of the pneumococcus, and in these 11 animals, by carefully graduating the amount of his intratracheal injection, he was again able to produce typical areas of red and gray hepatization. In a careful histological study of the lesions of these animals Wadsworth has shown beyond peradventure that the changes found in both the normal and the immune rabbit resemble in all particulars the changes seen in pneumonic lungs in men.

SERUMTHERAPY.

In the light of our present knowledge of diphtheria and tetanus antitoxin, by far the most interesting work on the pneumococcus relates to the study of its filtrates for the presence of soluble toxins and to the examination of the blood serum of patients suffering with pneumonia, and of animals rendered artificially immune to this organism for the presence of specific immune substances. These were originally thought to be possibly of the nature of antitoxins, but now believed to conform really to the nature of agglutinins and bacteriolysins.

Both Fraenkel[16] and Bordoni-Uffreduzzi[17] as early as 1886 noted that animals which had received a small non-fatal dose of pneumococci could withstand later the injection of a virulent culture, and these observations were confirmed by a number of other men. Weakened and killed cultures of the pneumococcus as well as filtrates from fluid cultures were employed for the purpose. Many attempts have been made to demonstrate in such cultures a true toxin of the nature, perhaps, of diphtheria toxin.

Possibly the most interesting investigation on this point is that of the Klemperers,[18] who prepared from pneumococcus cultures, by precipitation with alcohol, a yellow-white powder of an albuminous nature which they considered to be a pneumotoxin. The Klemperers believed that in experimental animals an antitoxin was produced which neutralized this pneumotoxin. In pneumonia in man, moreover, they believed that the healing process was due to the elaboration by the body of a similar antipneumotoxin, by means of which the toxin was neutralized, when the body fluids themselves were able to destroy the pneumococci present in the diseased lung. Now, if serum from artificially-immunized animals were employed to aid the body in the neutralization of this pneumotoxin it could of itself deal with the infecting micro-organism, and the crisis in the course of pneumonia would develop. The work of the Klemperers was supported by a number of ingenious experiments, which have not, however, been satisfactorily confirmed, and the exact mechanism of the changes in pneumonia was still involved in much obscurity. Following upon the discovery by Gruber and Durham of the agglutinins and by Pfeiffer of the bacteriolysins, attention was directed to the more careful study of the blood in pneumonia and in immune animals for the detection of similar substances. Neufeld[19] was perhaps the first to demonstrate the agglutinins for the pneumococcus in the blood of immune animals. He demonstrated the Widal reaction by both microscopic and macroscopic methods, the maximum dilution of the blood serum sufficient to clump the organisms being possibly 1 to 50. Similar reactions were shown by Besançon and Griffon,[20] by Huber,[21] and by Jehle,[22] who have also found agglutinins in the blood of pneumonic patients, especially at the time of the crisis. The agglutinins were never very abundant, although Jehle reports their presence in dilutions of 1 to 160 and even 1 to 320, and they

soon disappear from the blood. The reaction, however, has apparently some diagnostic value, although Wadsworth, in working over the whole subject again, found that the reaction never passed beyond the limit of a dilution of the blood serum of 1 to 10. (Wadsworth also demonstrated a precipitin reaction between immune serum and cultures cleared by bile, and filtered salt-solution extracts of the pneumococcus cells.)

Other observations of interest on the properties of the blood of pneumonic patients are those of Issaeff,[23] who believed that this serum contained neither antitoxic nor bactericidal substances, but rather leucocytes in extraordinary conditions of activity—a so-called intensive phagocytosis.

It would not be appropriate at this time to enter into a more critical analysis of all the observations relating to the properties of the blood serum in pneumonia. The conservative opinion, as recently emphasized by Weichselbaum,[24] is to the effect that the pneumococcus does not secrete a true extracellular toxin like the diphtheria and the tetanus bacillus, but exerts its toxic action like the typhoid bacillus by the disintegration of the bacterial cell within the body of the animal and the liberation of poisonous substances, true endotoxins. The serum of the patient contains no antitoxic materials, but rather certain bactericidal substances. How the endotoxins are neutralized in the animal body after the liberation from the bodies of the pneumococci through the agency of the serum bacteriolysins still remains one of the obscure and fascinating problems of immunity.

The first attempts to prepare artificial sera which could be of use in the treatment of pneumonia in man were made possibly by the Klemperers in 1891, although Emmerich and Fawetzky,[25] and Foa and Carbone[26] also were instrumental in the attempt to solve the same problem.

The Klemperers in 1891 treated six cases of pneumonia by a serum prepared from animals through the use of pneumotoxin, but the results were practically negative. Since 1891 curative sera have been administered by Jannson[27] in 10 cases, by Washbourne[28] in 2 cases, by Pane[29] in 23 cases, by Goldsborough[30] in 395 cases, and by a number of others. In analyzing such reports it must be remembered that the mortality from pneumonia undergoes considerable variations even when the disease is untreated, and therefore no very sweeping conclusions can be drawn from the success of any line of treatment unless two series of cases be compared from day to day over long periods of time, the one series treated by the special sera, the other treated with our ordinary therapeutic remedies for the preservation of the body strength. Under such conditions one cannot help but conclude that the curative sera thus far devised, like other bactericidal and agglutinative sera, have no definite action in diminishing the mortality from pneumonia. Indeed, one cannot help but feel that, despite all our knowledge of

the etiology of this disease, its mortality, if anything, is greater than it was a century ago, and from the standpoint of serum-therapy that our therapeutic measures have not improved one iota in the last 25 years.

The most important recent communications on the characters of the pneumococcus have come from the New York Department of Health, being the first part of the "Report on the Medical Commission for the Investigation of Acute Respiratory Diseases,"[31] and devoted to studies on the pneumococcus by a considerable number of observers in different laboratories in New York, Philadelphia, and Boston, the result of the different workers being finally submitted to Dr. Philip Hanson Hiss of the College of Physicians and Surgeons for confirmation or disproval. The primary object of the commission in this portion of its work was the solution of several problems highly important alike for the bacteriologist and clinician. These problems may be judged from what has already been said concerning our general knowledge of the pneumococcus, and they consisted of some of the difficulties which had vexed bacteriologists since the publications of Fraenkel and Weichselbaum. They dealt with such subjects as the differentiation of the pneumococcus from the streptococcus, especially by Hiss' inulin ox-serum medium; the more careful study of the bacteriology of the normal lungs; the identification of certain micro-organisms found in health and disease heretofore not clearly defined as separate and distinct species of micro-organisms, and with a number of other questions. Possibly the most important question to be solved for a proper conception of the etiology of pneumonia had to do with the micrococcus of sputum septicemia, and the determination whether the organism found by both Sternberg and Pasteur in normal saliva was really the pneumococcus, and not an organism closely allied morphologically, but not related to pneumonia, a conception which recently gained credence in Germany.

All of these questions and a number of others have been so satisfactorily settled that I can do no better in concluding this paper to refer at some length to the findings of the commission.

Primarily, it has been found by nearly all observers, including Park and Williams, Longcope and Fox, Norris and Pappenheimer, Duval and Lewis, Buerger, and finally by Hiss, that the typical pneumococcus coming from definite lesions, and possessed of varying virulence for susceptible animals, and always surrounded by a distinct capsule, can be differentiated with certainty from the typical *Streptococcus pyogenes* by the ability of the pneumococcus to ferment the inulin ox-serum medium of Hiss. Between the typical streptococcus, on one hand, and the typical pneumococcus, on the other, is a considerable number of cultures which in certain re-

spects are difficult to classify, and occupy an intermediate position. Some of these are definitely encapsulated and in all other respects correspond to the pneumococcus, but fail to ferment inulin. Coming from typical pneumonic lesions, they should undoubtedly be looked upon as typical pneumococci. Others failing to ferment inulin, and conforming in other respects to the streptococcus, are nevertheless surrounded by capsules, and in this respect we revert to the old notion of an encapsulated streptococcus. Nearly all of the observers were struck by the frequency with which they found a type of organism already described by Howard and Perkins, and by Schottmüller, and usually designated as *Streptococcus mucosus capsulatus,* the consensus of opinion being, perhaps, in favor of the identification of the organism as a special type of pneumococcus. Secondarily, the organisms from the normal and healthy throats identified previously as the micrococcus of sputum septicemia can be distinguished by no criterion, such as capsule formation, fermentation of inulin, virulence for animals and the agglutinability by the serum of immune animals or pneumonic patients from the pneumococcus isolated from hepatized lung, and they should therefore be considered veritable pneumococci. Finally, some very remarkable results have been obtained in the study of the distribution of the pneumococcus. Longcope and Fox, for instance, from the examination of normal throats, were led to believe that there is a distinct seasonable variation in the distribution of the organism. A much larger percentage of individuals harbored this micro-organism during the cold, damp months of winter than during the hot, dry months of summer. Again, Buerger, while finding the pneumococcus in 39 out of 78 cases examined, was able to follow a number of patients in hospital wards whose throats were free from pneumococcus for considerable periods of time, but which showed this organism almost immediately after a patient with pneumonia was brought into the ward, the method of communication apparently being handkerchiefs and drinking cups.

Finally, and in conclusion, the experiments conducted by Wood in relation to the viability of the pneumococcus suggest some very important ideas as to the prevalence of pneumonia during certain periods of the year, viz., the damp, rainy weather of the fall and early spring. Wood has shown, for instance, that the average life of the pneumococcus in moist sputum, kept in the dark at the temperature of the room, is 11 days, while in the same sputum, kept at 0°, the average life of the organism is 35 days. In sputum kept at room temperature and in strong sunlight the pneumococcus lives but five days.

Again, in dried sputum, kept in the dark, the pneumococcus lives 35 days, but under similar conditions is killed in sunlight in four hours.

From such simple facts as these most important and far-reaching conclusions can be drawn both in regard to the prevalence of pneumonia at certain seasons of the year and in regard to the simple methods requisite for the destruction of the virulent pneumococci.

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CANCRUM ORIS.

By James D. Morgan, M.D.,
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READ BEFORE THE MEDICAL AND SURGICAL SOCIETY, NOVEMBER 2, 1905.

THE term cancrum oris is of rather recent selection, although the particular susceptibility of this location to gangrene seems to have been long known. The lectures of Depuytren, republished in 1835, has no reference to the disease. There is no heading under noma or cancrum oris in the "Practice" of Robert Thomas, London, 1813, or Thomas Watson, 1853. Niemeyer's "Practice," dated 1867, has quite a full article. In an old book of William Dewees, 1829, on children I find a reference to a Dr. Underwood, who speaks of "aptha gangrenosa of the mouth" and its treatment, and who claims to have cured some of these cases by the use of a bitter bark.

It is not only the debilitating diseases which prepare the system for the inroads of the disease, but it is the association of certain bacilli with suppurative cocci that form a nidus for this fulminating disease. Considerably over half the cases seemed to have followed the wake of measles, and the larger part of the other half typhoid and pertussis. There is no question that teething, when harnessed with one of the mentioned diseases, runs more surely to the malady.

The disease in nearly all cases starts between the corners of the mouth and the opening to Steno's duct, opposite the first or second molar. In most cases a purplish vesicle is seen, which ruptures, leaving ragged edges, the surrounding tissues having a darkish appearance, which becomes rapidly—often within eight hours—dark green necrotic, having a very offensive odor. The saliva is now profuse, and the whole face appears puffy, the cheeks showing externally a red spot with marked induration. The swelling of the face increases; the cheek assumes an ashen or dark blue appearance, with internally ragged excavations on the cheek. In a case recently seen, following the internal destruction of part of each cheek, there appeared externally on each cheek within 24 hours of each other a bleb which bursted, leaving a raw surface. The saliva which was mixed with the expectoration was very offensive and contained bits of tissue. In the examination there were no diphtheria or tubercle bacilli found. Recent investigation seems to show that in many of the cases the scrapings of the tissue will show bacilli very closely resembling the diphtheria bacilli.

The patient's general condition during all this time is most pitiable to behold. The eyes, nose, and mouth are hardly distinguishable in the general swelling; the child has great difficulty in swallowing, and cries incessantly for water; there is a rapid pulse and respiration, with temperature about 102° or 103°; the blood shows a marked leucocytosis.

The diagnosis is made not from the history of the case, but from the appearance and feel of the cheek, with absence of local pain, and the distinctive odor of the part.

The treatment is supportive, hygienic, and local. When we consider that about 90 per cent. of the cases die, and the duration of the disease is from a week to 10 days, our treatment has to be heroic and energetic. In suppurative and gangrenous cases the patient can take liberally of whiskey, milk, broths, strychnia, iron, and, in fact, anything which is nutritious. Scrupulous attention should be paid to the mouth and fauces by antiseptic but bland washes and sprays. The region of the slough on the inside of the cheek should be thoroughly curetted or excised, or the Paquelin cautery may be used. The child should, if possible, be given a general anesthetic and the gangrenous portion and beyond it excised, using the cautery to prevent bleeding wherever possible. The danger of complications throughout the whole disease is very great, especially from septic pneumonia and colliquative diarrhea.

DISCUSSION.

Dr. J. D. Thomas opened the discussion, reporting a case which occurred after typhoid fever. The gangrenous area in the cheek healed, but the child died later from constitutional conditions. He spoke of the extent of any radical operation which might tend to lessen the mortality of the condition.

Dr. T. A. Groover said that he had seen the case reported by Dr. Morgan, and called special attention to the characteristic abscence of pain in this disease. In the etiology of the disease he spoke of the large proportion of the cases that followed the acute infectious diseases, especially measles. Some of the statistics gave from 50 to 90 per cent. of the cases as following measles. One set of statistics that gave 50 per cent. after measles gave 6 per cent. after pertussis and 9 per cent. after mercurialization. On account of this complication he drew attention to the seriousness of measles and whooping-cough, and recommended as a prophylactic measure great care of the mouth in these two diseases. The treatment of cancrum oris is unsatisfactory on account of the systemic infection, and therefore he laid stress upon the general supportive treatment.

Dr. W. W. Wilkinson had also seen the case. He called attention to the rapid advance of the condition. In the morning the cheeks had appeared normal, and eight hours later the cheeks were much swollen, and there was a dusky spot in the center of the swollen area. At that time also the mucous membrane showed

blebs in the affected areas. He said that in this case the systemic condition would have prevented any anesthetic.

Major Borden, U. S. A., spoke of the pathology as an infection associated with thrombosis of the blood vessels. He called attention to the occurrence almost always in children.

General Forwood, U. S. A., said that the special localization of the trouble suggested a possible trophic influence, and said that the explanation of thrombosis did not seem likely to him on account of the free anastomosis in the vessels of the cheek.

Dr. A. F. A. King called attention to the analogies between the varieties of inflammation following the infectious diseases in the mouth and vulva, and said that he knew no explanation.

Dr. Abbe reported a case in a boy of 17 years after indefinite preliminary symptoms. The angle of the mouth and the lips were the parts affected. The gangrenous portions sloughed away and the wound healed. The patient died a month later with obscure symptoms, but the autopsy revealed only a small hypernephroma. The case is interesting from the absence of any acute infectious disease and the age of the patient.

Dr. J. Eliot asked if there was any relation between cancrum oris and foot and mouth disease.

Dr. J. D. Morgan, in closing the discussion, drew attention to the statement in Butler's "Diagnosis" that cancrum oris occurs only on one side of the mouth. In this case both cheeks were clearly involved. He spoke of the mortality as from 75 to 100 per cent., according to various authors. He noted a reference where the trouble developed after diphtheria in a man 47 years of age, which was fatal. He knew of no relation between cancrum oris and foot and mouth disease.

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Current Literature.

REVIEW IN MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

THE INFLUENZA BACILLUS IN BRONCHIECTASIS.

Boggs (*American Journal of the Medical Sciences,* November, 1905) gives the results of a very interesting series of bacteriological observations in bronchiectasis. He first calls attention to the fact that bronchial dilatation may be met with during the course of acute influenza, whether of the pneumonic or the bronchial type, as has been demonstrated by Leichenstern, Beck, and others. In our own country, however, but little attention has been paid to the relationship between influenza and bronchiectasis.

Boggs reports in detail the bacteriological findings obtained by him in six cases, giving also the clinical history of each of these.

Case 1 was a male nurse, 29 years old, who had been sick for three months. The mode of onset of the disease was an acute coryza, with gradual development of cough and diffuse expectoration, small hemorrhages, irregular temperature, and sweats. The influenza bacillus was obtained in pure culture from the sputum. The autopsy showed diffuse bronchiectasis, bronchial erosion, patches of bronchopneumonia, and small foci of necrosis. Influenza bacilli were obtained in pure culture from the tissues, but no tubercle bacilli.

Case 2 gave a history of a three-years' cough, becoming worse during the last year, a large amount of foul sputum being coughed up during the paroxysm. Emphysema and orthopnea were present, but no fever, chills or sweats, and no hemorrhages. The bacillus influenzae was cultivated from the sputum in practically pure culture. Th patient became progressively weaker, with a steady increase in the amount of expectoration, and died three years after the onset of the symptoms. Due to the fact that the lungs were injected with formalin, cultures from the tissues were not made at autopsy, but stained sections showed that the walls of the bronchi contained many leucocytes, with numbers of small bacilli like the bacilli of influenza.

Case 3 gave a history of chronic cough for 30 years, with an acute influenza 11 years ago, with increased paroxysmal cough and profuse expectoration. Signs of cavity were present in both lungs, but there was no hemoptysis, nor were tubercle bacilli nor elastic fibers found. The influenza bacillus was obtained in pure culture from the sputum. The patient also had clubfingers and arthritis deformans, but cultures from the joint fluid were negative on all media.

Case 4 gave a history of 12 years' standing. The onset was acute, and there was probable empyema, early cavity-formation, and thickened pleura. The cough was paroxysmal, the expectoration foul and profuse, and there had been severe recurrent hemorrhages for 10 years. The patient showed marked scoliosis and extreme hypertrophic osteoarthropathy. The exacerbations of the symptoms were often attended by fever and sweats, but no tubercle bacilli or elastic fibers were found, while the influenza bacilli were found in pure culture in great number in the sputum.

Case 5 gave a history of nine years' cough, beginning with pneumonia and empyema, for which operation had been performed. Paroxysmal cough gradually developed, with profuse foul expectoration. Exacerbations of the disease were associated with fever and sweats, but there was no hemoptysis. The examination of the

sputum showed influenza bacilli and an organism which produced a marked fetor. Tubercle bacilli were not found.

Boggs also reports two cases of chronic bronchitis with probable dilatation of the bronchi, from both of which influenza bacilli were obtained from the sputum in absolutely pure culture. Both gave a history of cough with profuse expectoration for many years.

The last case Boggs reports is one of chronic bronchitis of 30 years' duration, with slight hemoptysis. There was a localized pleurisy, with encapsulated effusion, and the bacillus influenzae was obtained from the sputum in pure culture. Two weeks later an empyema developed, and the pus showed again influenza bacilli in pure culture. The patient was operated on and made a complete recovery.

Boggs' cultural methods were the collection of the sputum in sterile cups and its examination without delay, the washing method of Kitasato and Lord being employed. Pigeon-blood agar was used in most cases as a culture medium, while in certain cases sterile fetal blood from the placenta was added to the agar. On the latter medium involution forms appeared earlier, and were sometimes so large and irregular as to suggest a mixed infection.

The conclusions arrived at by Boggs as the result of these very interesting observations are as follows:

1. The influenza bacillus is probably capable of producing extensive pathological changes in the lungs, leading at times to bronchiectasis. The organism may be a secondary invader or associated with other bacteria. The latter may be the preponderant factor. In our small series there was no clinical difference determinable between the pure influenza infections and the mixed or non-influenza cases.

2. The very close clinical resemblance of these cases of bronchiestasis to some cases of chronic tuberculosis with cavity formation is important, and may, in the absence of cultural investigations, lead to a wrong diagnosis. Physical signs alone, therefore, cannot be relied upon for a positive diagnosis of tuberculosis.

3. Care should be taken to prevent the possible infection of others from these chronic cases having influenza bacilli in the sputum, as the organisms may not have lost their pathogenicity by a continued growth in these old infections.

* * *

POISONING BY MUSHROOMS AND ITS TREATMENT BY ANTITOXIN.

Plowright (*British Medical Journal,* September 9, 1905) reports four cases of poisoning by the *Amanita phalloides,* as well as collecting a number of similar cases from the literature. He at first calls attention to the fact that the majority of fungi are edible when

cooked in an appropriate manner, and that the really poisonous species are few in number; in fact, the vast majority of fatal cases are referable to the eating of one species alone—the deadly *Amanita phalloides*. Of course, deaths from this source are much more common on the continent of Europe, where fungi are used as an article of food to a very much greater extent. The poisonous principle of *Amanita phalloides* is not an alkaloid, but a toxalbumin—phallin. Botannically, *Amanita phalloides* has certain characteristics by which it and its allies can readily be recognized. The most important of these characteristics are that it is always white beneath the cap, the edible mushroom being pink, purplish-brown or almost black, while on the top it is frequently nearly white, with almost always traces of yellowish-green about the margin. The stem of the edible mushroom is nearly cylindrical, but the stem of the *Amanita phalloides* is always bulbous, and springs out of a cup made by the upper part of the bulb, the so-called poison cup. This deadly fungus never grows far away from trees, especially oak trees, and it will peel almost as well as the common mushroom. Plowright reports in some detail four cases of death after eating the *Amanita phalloides* and two cases of recovery. His cases, as well as the 18 cases he was able to collect from the literature since 1900—and incidentally all of these cases were reported by French physicians—show that a considerable period of time, averaging 10 to 12 hours, elapses between the ingestion of the fungus and the appearance of the first symptoms; that the average period in which it proves fatal is 72 hours, that atropin seems to have no beneficial effect in these cases, and that most of the cases were young—one-half under 20 and a third under 10 years of age.

According to Kobert, who has done most of the work upon the chemistry of phallin, this toxalbumin is closely related to ricin, contained in the seeds of the castor-oil plant, and abrin, from the jequirity bean.

The most commonly-observed symptoms in a case of phallin poisoning are vomiting not occurring for from 10 to 12 hours after eating the fungus, diarrhea, abdominal pain, cramps of the stomach and diaphragm, intense thirst, cold sweats, collapse, sometimes headache, delirium, more or less complete suppression of urine, slight but distinct jaundice in the latter stages of severe cases, subnormal temperature, and sometimes cramps in the limbs.

The post-mortem examination shows absence of post-mortem rigidity, marked hypostatic discoloration, inflammation of the gastrointestinal mucous membrane, localized ecchymoses of the liver, alimentary canal, pleura and lungs, enlarged solitary glands, fatty degeneration of the liver, fluidity of the blood, and hyperemia of the meninges.

As to treatment, Plowright believes that the orthodox rule of emptying the stomach and intestine applies only to those cases seen in the early stage. Morphia must be used in nearly all cases to control the pain, while permanganate of potash should be given in an attempt to oxidize any of the phallin left in the stomach. Subcutaneous administration of normal salt solutions has also been used with success.

Ford (*Medical News,* October 21, 1905) furnishes a preliminary communication on the subject of the antitoxin treatment of mushroom intoxication. Ford has found a number of fatal cases in the literature, and thinks that probably there are well over 100 such on record, especially in Russia, Germany, Italy, France, and Japan, where fungi are eaten to a considerable extent by the peasants. As Plowright also said, the fatal cases are practically all found after eating the *Amanita phalloides,* and the mortality after eating this fungus is considerably over 60 per cent.

Ford collected his specimens of the *Amanita phalloides* in the Blue Ridge mountains of Pennsylvania and Maryland, and after drying them in the sun made an extract by maceration in water, expression between folds of linen cloth, and filtration, first through ordinary filter paper and then through a Berkefeld filter under pressure. By this process there is obtained a thin dark-brown fluid which may be kept almost indefinitely without losing its toxic properties. The toxic principle, phallin, is strongly hemolytic, and when brought to isotonic solution by adding the proper amount of sodium chloride quickly dissolves the red corpuscles of man, cattle, swine, sheep, goats, rabbits, dogs, guinea-pigs, hens, and pigeons. Heated to 65° C. this property is lost, and is not restored by the addition of serum, lecithin, milk, etc., thus showing that the hemolytic principle belongs to the category of bacterial hemolysins, and not to that of the serum hemolysins. Ford found this extract very poisonous in small animals, and after a fatal subcutaneous dose extensive subcutaneous edema, with hemorrhages in the lymphatic glands, in the serous membranes, and in the internal organs, especially the liver and kidney, was met with. There was diastolic arrest of the heart and fluidity of the blood if the dose was large.

By treating rabbits by repeated small doses of phallin subcutaneously, followed by large doses intraperitoneally, Ford found that it was possible to immunize them against the action of multiple toxic doses. He has obtained successful results with five or six rabbits, so that these animals were able to stand five times the fatal dose, while their blood serum showed definite antihemolytic and antitoxic properties.

Ford is at present engaged in immunizing a goat from which he hopes to obtain a more efficient serum.

PROCEEDINGS

OF THE

MEDICAL AND CHIRURGICAL FACULTY

OF MARYLAND

Editorial and Publishing Committee.

ALEXIUS MCGLANNAN, M.D. HENRY O. REIK, M.D. JOHN RUHRAH, M.D.

Secretaries of the County Societies are earnestly requested to send reports of meetings and all items of personal mention and of local or general interest for publication addressed to Dr. Alexius McGlannan, 847 North Eutaw Street, Baltimore.

IMPORTANT NOTICE TO MEMBERS.

TO THOSE who pay their annual dues to the Medical and Chirurgical Faculty before the first of February, 1906, the defense against alleged malpractice will be granted. It therefore behooves each member who desires to take advantage of this feature of the organization to forward his dues to the treasurer of the society to which he belongs. It further behooves all members of county societies to see that their treasurer, in turn, forwards on the first of February the portion which is due the Faculty. The members of the society are responsible for their officers, and the Medical and Chirurgical Faculty is in no way responsible for the negligence of the officers of county societies, and unless dues paid before February 1 are promptly remitted to the treasurer of the Faculty they will not be considered paid in advance. The importance of electing live, active officers is therefore apparent, and if the president, secretary, and treasurer of your county society is not thoroughly alive to his duties and responsibilities, and is not willing to perform them, see that at the next election capable officers are elected.

MR. S. H. ADAMS' ADDRESS.

THE address of Mr. S. H. Adams to the Baltimore City Medical Society at the annual meeting was in many ways one of the best papers ever read at our meetings. The interesting subject made it thoroughly enjoyable to everyone. That the paper was carefully prepared was evident from the directness of the arguments and examples, and the proof of facts by evidence from original sources of information.

Aside from pointing out the duty of the medical profession in the matter of nostrums advertised in the lay press, and the necessity of the scrutiny of advertisements by the editor of the medical journal before the stones are cast at the lay brother, Mr. Adams gave good advice and example to all doctors in general concerning public utterances of opinion. His account of the interview with a medical friend regarding the presence of cocaine in a much-advertised cure-all pointed out the prevailing sin of our profession—the tendency to make irresponsible, exaggerated statements rashly and without thought of the consequence to others. He showed how necessary it is to go to first sources for information. How often are medical reviewers satisfied with a hearsay or quoted reference! Fortunately for them, the results are not as serious as they have been for the journalist who depended on the old report of the chemist.

It is probably too much to ask for the equal of Mr. Adams' fluent expression and lucid phraseology from one untrained to literary work, but surely all will be grateful if his example leads to an improvement in the style of the average paper read at meetings of our societies. The ponderous diction and halting utterance of many of these often ill-prepared articles causes the depressing stolidity of many of our meetings and explains their poor attendance.

Let everyone called upon to address a society meeting carefully collect the basic facts of his contribution, express them in good, plain, straightforward English, get familiar with the arrangement of his material, and then deliver it in his usual speaking manner, without affectation or striving after oratorical effect, inasfar as possible follow the good example we have had, and then the benefit of Mr. Adams' address will be continued long after Peruna, etc., shall have ceased to stimulate the public interest.

This forcible paper will soon appear in the MARYLAND MEDICAL JOURNAL. Immediately after his return to New York on December 6 Mr. Adams was attacked by the prevailing influenza, and has not yet fully recovered. This occurrence not only delayed our receipt of his manuscripts, but also cancelled Mr. Adams' engagements to appear before other medical societies.

THE OCULAR SYMPTOMS OF TABES.

By Edward E. Gibbons, M.D.,
Baltimore.

Assistant Surgeon, Presbyterian Eye and Ear Hospital; Chief of Clinic and Demonstrator in Diseases of the Eye and Ear, University of Maryland.

READ BEFORE THE NEUROLOGICAL SECTION OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, DECEMBER 13TH, 1905.

It has now been about 50 years since Duschenne so well described tabes. He was not the actual discoverer of the disease, however, for Wunderlich and others had given very good accounts of it before him, but largely to him is due our knowledge of tabes today. Physicians prior to Duschenne's time had paid little attention to the symptoms as described in this disease. Various statements made by the older physicians may be construed to apply to tabes, but they are so indefinite that no particular weight can be attached to them. It is not flattering to the medical profession that so important a disease should have been so long unrecognized. Since the time of Duschenne, however, much work has been done to deepen our knowledge of the disease. We now know that tabes is metasyphilis, that is, a sequel of syphilis, and that it becomes more frequent in just the degree that syphilis extends. The fact that year by year tabes is becoming more frequent reveals the morals of modern life. General paralysis of the insane, like tabes, is also becoming yearly more frequent. Both are sequels of syphilis. Their localization alone differs. If the brain is especially diseased, we term it general paralysis; in case the centripetal nerves are chiefly affected, we speak of it as tabes. For convenience, however, the former disease is classified with mental diseases and the latter with diseases of the spinal cord. However numerous and varied the symptoms of tabes may be, there are still a few essential and pathognomic symptoms upon which the diagnosis rests and which alone constitute tabes. These symptoms which are often the first to appear characterizing tabes incipiens are reflex iridoplegia, lancinating pains, loss of knee phenomenon, vesicle disturbances, and certain alteration in the sensibility. I wish this evening to especially direct your attention to the ocular symptoms as manifested in tabes. Such are reflex iridoplegia, atrophy of the optic nerves, and paralyses of the eye muscles.

Reflex iridoplegia, or Argyll-Robertson pupil, as it is more frequently termed, was described by Robertson in 1869, and consists in the failure of the pupils to contract when light enters them, although they react normally, that is, contract to accommodation and convergence. This phenomenon occurs only in tabes and in progressive paralysis, save in rare cases of focal lesions in the corpora quadrigemina, and is evidence that syphilis has attacked the

central nervous system. To demonstrate reflex iridoplegia it is not sufficient to demonstrate immobility of the pupils to light, but a good reaction on convergence must be shown to exist. If the iris is paralyzed, the latter reaction will likewise be wanting. Paralysis of the sphincter iridis is found in focal and perispheral lesions of the third nerve from various causes. As reflex iridoplegia is found practically always in tabes, and as it occurs as the first sign in the majority of cases, and since it is objective and easily demonstrated, it becomes the most important symptom of the disease. It is found in three-fourths of all cases of tabes. It is generally present from the first if it appears at all. It may exist for years as the only symptom. The best way to test for the Argyll-Robertson pupil is to seat the patient facing a window and have him gaze out of doors for his accommodation, and convergence must be relaxed as much as possible. The physician then shades the eyes of the patient with his hands for a few seconds and then removes them. If the pupils remain fixed or stationary when the light falls into them, he holds the finger or a pencil close to the tip of the patient's nose and requests him to look at it. The pupils will then contract unless tied down to the capsule of the crystalline lens behind from a former attack of iritis or paralytic from involvement of the third nerve. If the patient cannot converge, the reaction may be gotten by holding the pencil or finger directly in front of one eye and close by, because contraction of the pupil occurs associated with accommodation as with convergence, although to a less degree. Complete immobility of the pupil occurs in tabes at times, but it is not all pathognomic. Reflex iridoplegia is nearly always bilateral, but may in rare cases be unilateral, in which case reaction is only lost under direct illumination, but when light is thrown directly into the eye under illumination of the fellow-eye both pupils contract (consensual reaction). The pupil of the fellow-eye reacts to direct illumination, but not when the light enters the eye with the Argyll-Robertson pupil. A slow and imperfect reaction of the pupils to light must not be taken for reflex iridoplegia, but a distinct difference must exist between the light reaction of the pupil and its reaction in convergence. Associated with the loss of reaction of the pupil to light in tabes, we find that the dilatation of the pupils to painful stimuli is also wanting. When the skin is pinched or strongly stimulated with the faradic brush the pupils of the normal individual dilate, but not so with the tabetic on account of the involvement in the diseased process of the spinal center of the sympathetic in the medulla and upper cervical spinal cord, which presides over dilatation of the pupils. Even during the excruciating pains the tabetic suffers the pupils remain unaltered. Both pupillary reflexes—that to light and that to sympathetic disturbances—are abolished. The dilatation of the pupils to drugs is less than normal in tabetics. Besides inactivity, there are often alterations in the size of the pupils, most frequently a contraction, the so-called spinal myosis, accounted for in one of two ways—either that the ciliospinal center found in the cervical cord about opposite the

seventh vertebra, and which presides over the tone of the iritic blood-vessels, ceases to function, thus allowing the vessels to dilate and the pupil in consequence to become contracted, or the myosis is accounted for by the function of the sympathetic or dilator of the iris being abrogated. The third nerve is then left unopposed, and overacting, contracts the pupil. Reflex iridoplegia and myosis may be associated or occur separately. They occur together in about 80 per cent. of cases of Argyll-Robertson pupils. Mydriasis or dilatation of the pupils is much more infrequent, and occurs alone or associated with loss of light reaction in one or both eyes, and is to be accounted for by irritation of the spinal center of the sympathetic by the pathological process going on in the cord. The normal contraction of the pupil to light is carried on through what is called the pupillary reflex arc. The afferent tract of this reflex arc is composed of the retina, the optic nerve, the optic tract on the same side if the light affects the outer half of the retina, and that of the other side if the nasal portion of the retina is stimulated, the impulse passing over the chiasm, thence to the corpora quadrigemina anterior, which have to do alone with the action of the pupil, and not at all with the visual act, and then by the fibers of Meynert to the nucleus of the third nerve in the floor of the fourth ventricle. The efferent pathway is as follows: Both third nerves, lenticular ganglia, ciliary nerves, and their endings in the sphincter muscles of the irides. The Argyll-Robertson phenomenon can alone be ascribed to interference in conduction of Meynert's fibers or those connecting the corpora quadrigemina with the nucleus of the oculomotorius, although the particular lesion is not yet known. It may be looked for in the gray matter surrounding the third ventricle, and evidently lies close to the iris nucleus itself. Implication of the so-called ciliospinal center in the cervical cord cannot explain reflex iridoplegia, as the reflex arc just described would be able to carry on the reflex action of the pupil independently. On the other hand, we would expect to have a mobile pupil in cases in which the third nucleus itself is the seat of disease if this cord center presided over contraction of the pupil. We know, as a matter of fact, that lesions of the third nucleus cause total abolition of all pupillary action with a dilated pupil. The contraction of the pupil to convergence and accommodation is an associated action between the nucleoli of the third presiding over convergence, accommodation, and contraction of the pupils. Each of these functions is presided over by a separate nucleolus, a part of the third nucleus arranged from behind forwards in the order named (convergence, accommodation, pupil). Dilatation of the pupil is caused by the activity of the sympathetic nerve. The superior ganglion of the cervical sympathetic sends most of its fibers to the fifth cranial nerve, and are distributed with the sensory branches of the latter. Thus the pupillodilator fibers and other fibers destined for the eye pass into the ophthalmic division of the fifth nerve, and thence into the long ciliary nerves. A few fibers pass to the third, fourth, and sixth cranial nerves, conveying vasomotor im-

pulses to the ocular vessels. The pupillodilator fibers of the superior cervical ganglion of the sympathetic proceed from a center in the medulla (the spinal center of the sympathetic) as far as the second or third dorsal nerves, by which they pass to the ganglion. Some believe they are also found in the seventh and eighth cervical nerves. This system of the sympathetic also includes some aberrant motor cells such as are found in the course of the spinal accessory, in the ganglion trunci vagi, and in the lenticular ganglion.

Loss of patellar reflex, which is almost universally looked for in making a diagnosis of tabes, is not nearly so characteristic a symptom as is reflex iridoplegia, since any neuritis may cause the disappearance of knee-jerk. It is found absent in the great majority of cases of tabes at an early period, but its absence must not at all be regarded essential for a diagnosis, since cases of tabes with preservation of knee-jerk are not so very rare, or at least characteristic symptoms may be present before the patellar reflex disappears. One of the most distressing symptoms of tabes is *degeneration or atrophy of the optic nerves.* Authors differ as to the frequency of its occurrence. We may safely say that it is present in from 6 to 15 per cent. of cases. As a rule, it develops during the first stage of the disease, and may, indeed, be the first sign. Leimbach found it the first symptom in 1.5 per cent. of cases. Both nerves are, as a rule, affected, though usually one in advance of the other. True unilateral atrophy of the optic nerves does not occur in tabes, although other cerebral nerves may be affected on one side only. Diminution in the vision at times precedes the ophthalmoscopic appearances of atrophy, the latter developing subsequently. More often the oculist finds the signs of atrophy already present before the patient has noticed any deterioration of visual acuity. Atrophy of the optic nerves manifests itself by increasing paleness of the optic papillae. The edges of the disc become more plainly marked from the retina than normal, but the vessels remain unaltered. Subjectively, it is manifested by a loss of vision, by color-blindness, and by contraction of the field of vision. The field of vision in most cases suffers a concentric contraction, but the field may possess an irregular border with deep re-entering angles, the so-called sector-shaped field. In a few cases hemianopsia or half-seeing has been observed. Among the rarest anomalies of the visual field is the presence of a central scotoma or blind area in tabes. It is a very curious fact that optic atrophy occurring early in the disease seems to have a sort of inhibitory effect upon the progress of the latter. On the other hand, if the atrophy occurs later, there seems to be no such effect.

Paralyses of the Eye Muscles.—The majority of all paralyses of eye muscles in adults are tabetic excepting those due to gummatous infiltration. This fact is not sufficiently recognized, because such paralyses are apt to be the first symptom of tabes, and because they are so often transitory. If no other symptoms are manifest, a diagnosis of syphilitic or rheumatic paralyses of the eye muscles is made, and if the case recovers in a few weeks the physician feels assured

of the wisdom of his diagnosis and treatment. It may be said that every paralysis of the eye muscles which develops without pain in an otherwise healthy adult of middle age makes the diagnosis of tabes very probable. Syphilitic and rheumatic paralyses, as well as those from a neuritis of doubtful origin, are almost always accompanied by more or less pain. Multiple sclerosis produces ocular paralyses very similar to those of tabes, but the former is a much rarer disease than tabes. The earlier in the course of the disease the paralyses of the eye muscles occur the more transient are they, and they are more prone to recur and to finally become permanent. The paralysis, as a rule, first attacks a single muscle, the external or internal rectus or the levator of the eyelid. It is rather characteristic of tabetic paralyses that when one muscle is paralyzed the corresponding muscle of the other eye shows marked evidences of weakness. Thus if an externus is paralyzed the other externus will become readily fatigued when strongly acting, made apparent by nystagmus-like twitchings in forced abduction of the eyeball. Progressive ophthalmoplegia externa is the most important form of permanent eye paralysis observed in tabes. It was Hutchinson who first described it. In it all of the eye muscles are successively attacked and the lids hang down, but the internal eye muscles are spared. Both eyes are attacked simultaneously or in succession. There is usually an accompanying reflex iridoplegia with myosis. Much rarer, indeed, is a paralysis of the internal eye muscles in which the pupil is immobile even to convergence, but, as a rule, not dilated, and the ciliary muscle is in abeyance, made evident by the inability of the patient to read close by. Ophthalmoplegia interna is usually unilateral in the beginning of the disease, becoming bilateral later. Lastly, the sudden loss of accommodation of one eye is very suggestive of incipient tabes.

THE PHYSICIAN'S DEBT TO HIS PROFESSION.

By V. M. Reichard, M.D.

PRESIDENT'S ANNUAL ORATION, DELIVERED AT THE MEETING OF THE CUMBERLAND VALLEY MEDICAL ASSOCIATION, MT. HOLLY SPRINGS, PA., AUGUST 29, 1905.

It is well for the medical man as for the merchant to look over his affairs and see where he stands—see if there has been an advance or a recession, and know if the indications are favorable or otherwise. If this be true of the physician as an individual, it is especially true of the collection of individuals known as "the profession." And I have thought it not amiss to ask you to consider with me today for a little while the relation of the physician to his profession and the debt he owes to it. I am all the more ready to do this rather than discuss with you a strictly medical subject, as this association is in its inception and purpose more social than scientific.

I do not expect or hope to bring before you any new fact or principle, but sometimes the restating of an old truth may by its very triteness become suggestive, and, as Ruskin points out, he who challenges attention and compels thought has attained the highest end of discussion.

To say that commercialism dominates our age is only to say what everyone realizes. Capital, combination, organization, development have become words of everyday conversation. Every energy on every side is bent toward money-getting. Every man is in danger of being enveloped in this great maelstrom, and yet every great teacher and leader of the race has decried this spirit as detrimental to the individual by lowering his moral and spiritual tone and dulling, if not deadening, his finest sensibilities. The ideal, as distinct from the sordid, has been the goal aimed at by all the men who have left permanent traces on the thought of the ages. Emerson, pleading for the highest ideal of life, says: "You will hear every day the low maxims of prudence. You will hear that the first duty is to get land and money, place and name. 'What is this truth you seek, what is this beauty?' men will ask in derision. When you shall say, 'As others do, so will I; I renounce, I am sorry for it, my early vision; I must eat the good of the land and let learning and romantic expectations go till a more convenient season,' then dies the man in you; then once again perish the buds of art and poetry and science, as they have died already in a thousand thousand men. The hour of that choice is the crisis of your history, and see that you hold yourself fast by the intellect."

It is the desire to help each man to hold himself fast by what is highest and best in his nature that prompts me to try to recall in some measure today what each man of us owes to his profession. No man can stem the dreadful current of commercialism which is sweeping away all that is highest and best in modern society unless he does get firm hold on some high ideal and hold himself fast by it. The most pitiable man in all the body politic is the cynical pessimist who, with no ideal of his own, neither hopes nor looks for one in his fellows, but, going through life with a sneer on his lips and distrust in his heart, at last sinks into hopeless darkness, "unwept, unhonored and unsung." The victim of a false philosophy, his whole life would have been brightened and cheered and made helpful by a change of viewpoint. A false system of ethics says "the world owes me a living, and I am bound to have it." It is false; it is absolutely and utterly and eternally false. The world owes no man anything. The debit is all in the other column. It is a privilege to be allowed to live in the world, and every man who comes into it comes bearing a load of debt. For centuries men have been working to make the world a better place to live in; better, because brighter, more wholesome, and with ever-widening and greater possibilities of enjoyment and development. The pioneers who, with bent backs and strained muscles, hewed down the virgin forest and drained its swamps and lagoons; the men

who gave steam navigation and all the mighty possibilities of electricity; the men who have sent the wheeled palace flying over the land at a rate of speed almost incredible—have these men not placed their successors under obligations to the world? Civil and religious freedom, schools, colleges and all facilities for making education universal—do these not demand something higher than mere sordid wish to get all possible gain out of life and no proper spirit of service? "He who steals my purse steals trash!" But what shall be said of him who accepts favors at my hand daily and hourly and selfishly turns these favors to his own exclusive benefit without a thought of reciprocation? Tennyson states only a great truth when he says "We are the heirs of all the ages." And he might have said, "This heritage is entailed."

If this is true of society at large, how much more true is it of the physician? Here we tread upon hallowed ground. The sacred traditions of our great and godlike profession, the consecrated lives of the fathers who have made this profession what it is, the devoted labor of a myriad of men who, in every clime, are working for the elevation and perpetuation of the race with little thought of personal danger and none of personal gain—all these unite to warn me that here and now must no false note be uttered; that whatever may be another man's ideals and aims, whatever may be the debt another man may owe to the world and the race, the physician must not stop nor falter, must not hesitate nor shrink, but, open-eyed and clear-headed, must realize that he is what he is—under God, simply and only because of the earnest, devoted, unselfish labors of his predecessors.

Vessalius, Harvey, Jenner, Pasteur, Nelaton, Larry, Laennec, Louis, Hunter, Lister, Gross, Flint—but why undertake to name over the roster-roll of heroes? Who shall choose among the giants?

Think what we have—auscultation, thermometry, hypodermic medication, vaccination, microscopy, antisepsis, and all the details which touch the doctor's life hourly, almost momentarily!

What are these? So many aids to money-making? So many steps nearer what Emerson calls "the premature comforts of a house and barn and an acre of land?" Nay, nay, verily! These are only some of the indices of the debt the physician owes to his profession; these are only milestones—*miliarae aurae*—on the road of progress, telling how much labor has been spared to us. These show only how our predecessors have smoothed down the rough places, bridged over the difficult passes, shed light into the darkness, and made the way we travel bloom and blossom with beauty and fragrance, lightening our burdens and brightening our pathway. What shall we say of the man who will seize these and prostitute them for his own personal greed of gain, with no thought of helping on the work, with no thought of problems to be solved, of difficulties to be overcome or yet other dark places to be illuminated, and other barren spots to be brightened? Ingrate! poacher! are the appellations which arise involuntarily. My dog

takes from my hand the morsel I give him, and shows by his fawning the affectionate gratitude he cannot speak. But in the hour of trial he does not fail me. Me and mine will he defend to the utmost, giving in that defense his life if need be. And what of the man who, with the knowledge of what has been done for him by his profession, when that profession demands his fealty, his devoted service, will be found recreant to his trust! *"Virum Probum,"* says his diploma—"An honorable man." Is he such who thinks of his profession only as a means of making a fee? Is he an "honorable man," indeed, who will accept all that his profession has done for him and not feel honor-bound to do all he can for that profession?

When a man enters the medical profession he assumes a social as well as a professional obligation. Each man who receives the title of doctor of medicine is given a new and more exalted position in society by that very title. It becomes an open sesame to him, and before its magic spell doors open which hitherto had been hermetically closed and would have remained so forever had he not received this new title.

"Doctor of the art of healing" carries with it an inference of moral and social qualifications which throws the predisposition all in the bearer's favor. Even the clown or the boor, if he be so lucky as to receive the degree, is looked upon as a gentleman until he proves himself impossible. I state only what is every-day ethics when I say that he who receives must give. Ample return is the result of ample outlay, and he who would reap must sow. In no department of life does this hold more generally true than in the life of the physician. Recognize your debt of obligation, recognize what you have received, recognize what has been done for you, and then you begin to tread the high path of professional honor and distinction. A condition properly diagnosed is half treated, and he who realizes his debt of obligation at once begins such an idealization of his profession as brings him the highest reward that can come into the life of any man—the consciousness of duty done and the spiritual exaltation flowing from unselfish action.

This standard is not Utopian. Its principles have guided the best men of the profession at all times. Jesse Lazear dying of yellow fever in Cuba, away from wife and babies; Leonard Wood using his medical knowledge and training to solve the hygienic problems in the same island; Gorgas cleansing Havana and throwing a flood of light on muncipal sanitation, the men who are so heroically and successfully resisting the advance of yellow fever into the Mississippi valley at this moment—all these prove that the spirit of devotion to duty has not died out, and that the medical man can put fee behind him and work for the sake of work and for the protection of his race. Time and again have dire epidemic diseases knocked at the port of New York, and every time they have been flung back, baffled and defeated. None can estimate the financial value of this work to the community. Think what cholera in New York would mean; recall what yellow fever

meant in Memphis in 1878, and then you will get the answer to the question, Is the doctor paying his debt to his profession? Aye, more than that. Every obscure cross-roads doctor who vaccinates a pupil of the public school, isolates a case of contagious disease, or in the most humble way tries to shed abroad the great principles of preventive medicine unconsciously measures up to the standard set for him, and does what no other class of men in all the world does—tries to destroy his own source of revenue. Every case of illness prevented means so much smaller income for the doctor, yet in the face of contempt and ridicule and of opposition, both personal and official, the doctor goes on lessening the amount of sickness and suffering and adding to the sum total of human longevity.

As we look over the annals of our profession, gentlemen, and sit in the shadow of its great names and noble traditions we recall that—

"Lives of great men all remind us
We can make our lives sublime."

And though we may never attain financial success or even professional honor and distinction, we may at least, as opportunity is given us, live upward toward the highest ideals, and while doing our work simply and only because it is our work,

"Learn to labor and to wait."

RECENT PROGRESS IN LARYNGOLOGY.

By Frank Dyer Sanger, M.D.,
Baltimore.

A BRIEF REVIEW READ AT THE SEMIANNUAL MEETING OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND AT DEER PARK.

Mr. President, Ladies and Gentlemen:

Someone has said that progress is always spiral, and not rectilinear. Reviewing the work during the past months in laryngology, one does not come upon any startling discoveries or epoch-making researches, but one is impressed rather with the fact that we are passing through an era of readjustment. Workers are engaged in improving and strengthening old positions, trying to eliminate unnecessary defenses, to modify, simplify, and in general to render less sanguinary, methods of attack.

One is struck particularly with the immense amount of purely clinical material placed at our disposal to supplement one's own clinical experience and to help to broaden one's horizon. Indeed, it is gratifying to note that so many men who are engaged in active practice are willing to spend the time required to make the clinical reports with which our journals are filled. We are not, I think,

sufficiently grateful to these men. Their work is often more useful than that of the men who indulge in speculative dissertations, having no foundation and little superstructure.

One of my friends is in the habit of saying that a man doesn't live long enough to practice medicine well. I am quite sure that the average life of the laryngologist is not sufficient to compass his entire field clinically.

This thought underlies all specialism. It is much more desirable to have a wide experience in a narrow field than a narrow experience in a wide field. The man who works in the more limited province may occasionally reach the border line and help men working in other locations by calling their attention to such facts as bear upon the relation of his special field to theirs.

I wish it were possible for me on this occasion to bring to those of you who are not interested especially in laryngology some thoughts that might prove helpful or at least encouraging. At any rate, I shall not invite your attention to any questions of more exclusive laryngologic interest. Our controversies are numerous and engaging. We contend a good deal amongst ourselves over the questions how septal irregularities can best be corrected, how suppurative conditions in the accessory cavities can best be dealt with, how enlargement of the turbinate bodies can best be overcome, how the thousand and one consequences of abnormalities of the lymphatic structures can be avoided, how best to cope with the malignancies and benignancies in nose, throat and larynx, and so on. As a result, more people are able to breathe through their noses; we have learned how to obtain breathing space and drainage in the nose without the unnecessary sacrifice of necessary tissue or the abrogation of important nasal function; we have thus mitigated the state of many sufferers from the so-called catarrhal conditions; the accessory cavities are no longer closed to us. There is today no legitimate excuse for children to suffer the baneful results of disturbances of the lymphatic ring, and we are not ashamed of our management of the various benign and malignant processes, especially when we consider the difficulties in so perplexing a location as the larynx, for instance.

We call this progress. It is true we have come by a circuitous way, but we are consoled by the thought that progress is not rectilinear.

Rather than occupy your time with any of these questions, I beg leave to call your attention to one or two questions of much more general interest. The association of affections of the nose with respiratory difficulties lower down is a most interesting problem and one with which we are constantly confronted. We naturally speak of these affections as forming three groups—obstructive, infective, and irritative, the latter embracing certain respiratory conditions which are thought to arise from reflex irritation within the nose.

For a long time, and particularly since Voltolini in 1871 stated that he had relieved asthma by removing polypi from the nose,

the subject has received a great deal of attention. Not long ago the laryngologic and otologic section of the British Medical Association, having under discussion intranasal disease as a factor in the production of laryngeal and pulmonary affections, devoted most of its attention to asthma.

Dr. Grenville MacDonald, who opened the discussion, spoke particularly of the good results obtained in asthmatic subjects by the removal of complete or partial obstruction to nasal breathing. He referred also to the observation made by Dr. Alexander Frances that "whatever the state of the nose, whether free or obstructed, and whatever the state of the mucous membrane, the great majority of asthmatics, whether their asthma be catarrhal, spasmodic or cardiac, can be cured by cauterizations of the upper part of the triangular cartilage."

There are many who doubt the relation between asthma and intranasal conditions. Many laryngologists, indeed, believe with Sir Felix Semon that though relief may be afforded in a few cases, the prospects of cure are very small. Very few feel as convinced as does Dr. Frances, who had 600 cases, of which 60 per cent. obtained absolute and complete relief, 27 per cent. marked relief, and under 5 per cent. no improvement.

We do not approve Dr. Frances' classification of asthma, but there seems good reason to believe with him that the asthmatic state, if it has any relation to conditions in the nose, is produced reflexly rather than by obstruction or sensory irritation. All statistics upon the subject are unsatisfactory because of the lack of unanimity in the classification of asthma:

Dr. Samuel West spoke particularly of the statistical difficulties. He doubted whether, among the 5,000,000 people in London, 500 separate cases of spasmodic or true asthma could be found. Dr. St. Clare Thompson had known cases termed asthma which were really due to the dyspnea of Graves' disease.

Few will agree with Dr. Frances that when asthma is associated with nasal lesions the prospects of relief by treatment are less promising than when there is no gross disease.

Dr. Watson Williams, also taking part in the discussion, directed attention to observations such as those of Cajal, showing that the collateral fibers from the gelatinous substance of Rolando, which is the reception nucleus of the trigeminus in the medulla, communicate with the motor nuclei of the vagus, especially the nuclei ambiguous of the same and opposite sides. Hence there is anatomic evidence supporting the clinic observation that normal respiration is influenced by afferent impulses from the nasal passages.

Whatever may be our view regarding the nature of asthma, and whatever classification we may adopt, the great amount of evidence of improvement and cure resulting from the treatment of the nasal cavity, when compared with the very generally unsatisfactory result of therapeutic measures, should encourage us to give our patients the benefit of the chance.

In my experience asthmatics are drifters. They go from one

doctor to another with varying result, but sooner or later become discouraged and look after themselves, drifting from one asthma cure to another as they formerly did from doctor to doctor. It is after months or years of this sort of drifting, usually after the asthmatic habit has become firmly established (for there is undoubtedly a strong habit element in most cases), that the patient falls into the hands of the nose and throat specialist, recommended more often by a fellow-sufferer than by the family physician. Occasionally my asthhatic patients come early, sent directly by their family physician. I am always glad to see them under these circumstances, can assist them greatly in many instances, and have often been able to afford entire relief. I am free to say that I have failed utterly in others, but the proportion of failures is not so great as in patients who come after the asthmatic condition has existed a long time.

The field in which the laryngologist and the general practitioner has the greatest interest in common is the field of tuberculosis. It is the laryngologist's melancholy duty to see the most distressing of all the manifestations of the disease—tuberculosis in the larynx. If it is possible, I think we, more than anyone else, are anxious to have the disease eradicated.

We have reason to be very proud of the work that has been done in Maryland by the Tuberculosis Commission. Its campaign has been well planned, and I am sure that it has added much to the enlightment of the people of this State, and, indeed, of the world, upon subjects pertaining to tuberculosis, its prevalence, its nature, the methods of its transmission, prophylactic measures, and so on. Every physician in the State should do the utmost in his power to second the work of the gentlemen constituting this commission.

There are recent evidences to show that abnormal states of the upper respiratory tract have much more to do with tubercular infection than was formerly supposed, but I have not time to go into this question. There is one thought relating to the progress of the future, however, which I should like to bring to your attention. Tuberculosis is undoubtedly the most important disease with which our profession has to deal. Its amenability to treatment is in proportion to the earliness of diagnosis. The efficacy of all prophylactic measures also depends upon the earliness of diagnosis.

Our responsibility therefore begins at home. We need a more active campaign in our own family to stir its members to a greater alertness, a more careful watchfulness of our patients who are below par; we need to urge the necessity of careful chest examination from time to time of patients who are not up to the normal standard of health; we need, all of us, to come back to the subject of physical diagnosis, to review our methods of percussion, to cultivate our ear to a finer appreciation of pitch, and not to use the microscope less, but to use the naked eye more.

I have frequently been impressed with the fact that men actively engaged in practice, wishing to take a few weeks off to brush up, as they say, at one of the hospitals, spend most of their time wit-

nessing surgical work which they are rarely called upon to do, or taking microscopic work, which they will not have the time or opportunity to follow up, rather than devoting themselves to the further cultivation of those means of combating disease which they should daily employ—means which, I fear, are somewhat neglected in favor of the, at present, more popular laboratory methods.

This does not apply to any one class of men, but is a pretty general condition. We have permitted laboratory methods temporarily to supersede and, I fear, to obscure the older methods of physical diagnosis.

I am strongly of the belief that tuberculosis can be diagnosed earlier by physical examination than by any other method; that auscultation gives the earliest physical sign. If this be true, it follows that if tuberculosis is the most important disease, the most useful doctor in a community is the one who has a cultivated ear.

The late diagnosis of tuberculosis can be made by any member of a community. The community is rapidly becoming familiar with the disease, and has a right to and *will demand* earlier diagnosis than is made in the average case today. We cannot expect the laity to fulfil its responsibilities if we prove unequal to ours.

We feel that substantial progress is being made in laryngology along many lines. With the increasing knowledge which attends our progress there comes, of course, an increasing appreciation of our ignorance. We are appalled by the new questions that arise; we are dismayed, humiliated, indeed, that so many of the old problems remain unsolved. We feel that great good has resulted from our accumulated knowledge of disturbances of the tonsils, but we would like to know their function, and we would like to be able satisfactorily to explain so common a phenomenon as that of catching cold.

Society Reports.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD OCTOBER 23, 1905.

Medical Cases—Dr. R. I. Cole. *Cystic Kidney.*—Male, 41 years; complaint, "pain, shortness of breath, and weakness in back." He did not know date of onset. Fifteen years ago, after rowing, he noticed an enlargement of his abdomen, but it gave him no discomfort. Eight years ago a physician told him he had albumen in his urine. Two years ago his color changed; he became cyanosed, and there was pigmentation over his forehead and cheeks. On admission to the hospital the patient showed some cyanosis, a moderate grade of arteriosclerosis, and signs of cardiac weakness, but no murmurs. His abdomen was distended with distinct bulging in the flanks. As soon as the ascites had decreased there was made out a large mass in

the left flank, deep in the abdomen. It could be lifted forward from behind, and had an irregular surface with prominences, one of which resembled a ball 3 or 4 cm. in diameter. On the right side in a similar position is a like tumor reaching down into the pelvis. It is far back in the abdomen, and can be lifted forward. It also has irregularities. The patient shows symptoms of cystic kidneys. He has signs of cardiac weakness; urine of low specific gravity, some albumen and casts. While in the hospital the swelling of his legs and ascites disappeared, and his shortness of breath improved. Up to this time he had never had blood in his urine, but a few days after his discharge from the hospital he returned with some bloody urine which he had passed. The patient also shows a pigmentation over forehead and cheeks in addition to the cyanosis which is constantly present. The hematuria may be due to rupture of small vessels between the cyst walls. The signs of cystic kidneys are: Signs of large bilateral tumors, sign of cardiac weakness, signs of chronic nephritis, and hematuria. Three of Dr. Osler's four cases were recognized during life.

Pulsating Empyema.—Case 1 was admitted to the surgical wards in April complaining of "trouble with his lungs." He had had an attack of pneumonia in December, which lasted for five or six weeks and left him weak and losing strength. Ten days before admission he had marked exacerbations of pain and weakness, and continued to grow weaker. He was aspirated and a small amount of purulent fluid removed. The entire left side of the chest was bulging, and there was dullness in the supraclavicular fossa and flatness through the entire left chest below. There was an impulse in the third and fourth interspaces to the right of the sternum. The whole front and axilla of the left chest showed a visible pulsation, forcible, diffuse, and systolic in time. The chest was opened from behind and a large amount of pus removed. The patient left the hospital in good condition.

Case 2 was admitted in January complaining of "shortness of breath." He had signs of a pleural effusion on the left side. The chest was aspirated, and at different times 1100, 1200, and 1300 c. c. of fluid were removed. Tubercle bacilli were demonstrated in the fluid. The patient improved, and left the hospital practically well in March. He returned in June with shortness of breath and an irregular fever. A needle was inserted and a small amount of bloody fluid was removed which contained many mononuclear and but few polymorphonuclear cells. About the first of October there was a bulging in the left axilla. October 17 there was a definite area of pulsation, which tracings showed to be systolic in time, in the third and fourth interspaces outside the mamillary line. Cardiac dullness reached 8 cm. to the right of midsternal line. There was tympany in Traube's space, the dullness reaching only to the fifth rib. It was thought at first to be an encapsulated tuberculous pleurisy, but aspiration showed a purulent fluid in which polymorphonuclear cells formed 94 per cent. of the total cells. A rib was removed from the back and the cavity drained. The

patient is in good condition. Dr. Sailor recently went over the literature and found 97 cases of pulsating empyema reported. Among the earliest reports are the three cases reported in 1840 by Dr. McDonald of Montreal and the cases by Stokes of Dublin. Twelve of the 97 cases were serous effusions. The probable explanation of the pulsation is that ordinarily the elasticity of the lung takes up the pulsation, but if the lung be held firmly by adhesions or is completely compressed the pulsating waves are entirely spent upon the chest wall. To pulsate the fluid must always be under high pressure.

Congenital Cystic Kidney—Dr. C. H. Hunting. Cystic kidney is the large polycystic kidney of the French. The first cystic kidney reported was at the Royal Society in Paris before 1725. The first congenital cystic kidney was reported before 1790. The last summary made in 1900 gives 200 cases in adults, 90 congenital, and 13 in infants. Cystic kidney happens in .15 per cent., about the same proportion in each sex, and may be found in subjects from premature, or stillborn, to old age. There is a remarkable family tendency. Virchow reports cases in which four of six children were affected. Singer reports a family in which the first, fourth, seventh, tenth, and thirteenth children had bilateral cystic kidneys, the other children being normal. The condition also appears in the second generation, though there is only one case reported of crossed inheritance, all the others being from father to son or mother to daughter. The kidneys of the newborn may be very large, cases being reported in which the pair weighed over 1000 grams. In the adult they have weighed over 5000 grams.

Among the sections shown were gross specimens of kidneys from two children of the same mother. In the cortex of these were fine cysts. In the liver the portal surfaces had the appearance of an oak leaf. Through the medulla there was marked dilatation of the ducts, some of them divided up into finger-like processes. There were mitotic figures present. In the liver there was increase in the size and number of the bile ducts. Cystic liver occurs in 20 per cent. of the cases of cystic kidney. In the adult these cysts are lined with flattened epithelium, and have a fluid content, but no connection with the bile ducts. The theories of formation of cystic kidneys are grouped under four heads—the obstruction theory, new-growth theory, malformation in the development, and the group placed between malformation and new growth. Virchow believed at first in the obstruction theory. In 1875 an advocate of the new-growth theory claimed that there were outgrowths from the tubules which were solid or tubular and underwent a colloid degeneration. These are analogous to adenocystomata of the ovaries. The malformation theory dates from Kussner, who thought there was a failure of the collecting tubules to open into the pelvis. The advocates of the fourth theory thought it was a failure of the undifferentiated epithelium to grow in equilibrium. The lesions are ones of epithelial hyperplasia, which would not be included among new growths; they are adenocystomata. The ducts in the pancreas and liver show the same hyperplastic

condition. These cases can show malformations in other parts. Polydactylism, hydrocephalus, harelip, atresia of anus or vagina, rectovesical fistulae, heart lesions, patent ductus botalli, and many associated defects in the genito-urinary organs have been found in these cases. The lesion is more nearly related to congenital malformation than to new growth, and we must look in the parents for the cause. Only 10 per cent. of cases are unilateral. Cystic kidneys may be found in all ages, from infants to adults of 80 years. As a rule, if there is enough cortex for the person to live for awhile after birth, he may live a normal lifetime unless cut off by chronic nephritis. In adults with cystic kidneys there are the same associated malformations and liver conditions. It is very difficult in the adult kidney to make out anything in regard to the pathogenesis or histogenesis on account of the great changes that have taken place.

MEETING HELD NOVEMBER 6, 1905.

Dr. W. G. MacCallum, President; Dr. C. H. Bunting, Secretary.

Exhibition of Medical Cases—Dr. W. S. Thayer. *Anomalous Cardiac Murmur.* Case was a black male, 57 years old, admitted 16 times, the first being in 1896. He gave a history of only ordinary children's diseases; lues was denied. On first admission he showed edema of legs, shortness of breath, albumen in urine, and dilated heart, which symptoms cleared up under treatment. He had an attack of rheumatism of doubtful nature during the next year. On admission to hospital in 1903 his heart was more and more dilated, with a systolic murmur at apex. At that admission the apex was in the seventh interspace, with a systolic murmur. In the fifth interspace in the parasternal line there was a peculiar murmur of decreasing intensity beginning after a slight pause after the second sound and ending just before the first sound. It was in every way similar to a diastolic murmur of mitral stenosis except for its position. The patient on exhibition had a greatly dilated heart, with tricuspid insufficiency, and systolic pulsation in veins of neck and in liver. The first sound was replaced by a soft systolic murmur, and the second pulmonic was louder than second aortic. There was no suggestion of aortic valvular disease and no evidences of a true organic mitral lesion. The murmur was heard in area where murmur from tricuspid ought to be heard best when the blood is flowing from right auricle to right ventricle, but there was nothing that would point to tricuspid disease; besides, murmurs in tricuspid stenosis are very rare. Had there been an aortic lesion a faint murmur heard in this region, instead of its usual area near the apex, might be considered. The patient has a marked grade of sclerosis. Might not sclerotic atheromatous changes extending from the aorta to the anterior mitral curtains cause a slight interference to the passage of blood from the left atrium to the left ventricle by a thickening of the curtain? The sound began with a slight shock. The opening snap of mitral valve from relaxation of ventricle and pressure of blood from above might be caused by such a condition. The snap begins at the beginning of

diastole. There was thought not to be mitral endocarditis, but a dilated and hypertrophied heart secondary to arteriosclerosis. There was a mitral and tricuspid insufficiency, due to dilatation of the ring. The murmur was thought to be produced at either one or the other of these valves, most probably the mitral.

Marked Grade of Enteroptosis.—Patient was a black female, aged 45 years. She had a pulmonary tuberculosis involvement. The abdominal wall was remarkably relaxed. The liver edge was practically normal. Below it, just below the umbilicus, was a shadow descending on inspiration, with peristaltic waves passing from left to right, which on dilatation proved to be stomach. The stomach was entirely below the ribs, the tympany of the fundus beginning at the costal margin. The right kidney was very movable.

The Significance of Casts in the Urine—Dr. C. P. Emerson. Cylindruria is the occurrence of casts in the urine in various conditions. Cast varieties: Epithelial casts are distinctly made up of cells with round nuclei. They are parts of the tubules below the loops of Heule, and have lumina which can be seen. In addition to these, but which go under the same name, are hyaline casts with one, two, or a few cells with round nuclei. Many of these cells have a perfectly clear protoplasm, though the kidney cells are granular. Those of the first type are rare. They occur in acute nephritis. Those of the second type are common. They can be found in bicycle riders and athletes, as can blood casts, for a ring of red-blood cells washed out of the tubule is not uncommon after hard exercise, but the hyaline type with a few blood cells attached occurs in hemorrhagic nephritis. A true pus cast occurs in purulent nephritis, but hyaline casts with pus cells attached are found in athletes. Coarse granular casts are opaque, with very coarse granules. They are not translucent, and evidently are pus or epithelial casts gone to pieces. The next stage in the degeneration of these form the waxy casts, which are of two varieties, white and yellow, both of which tend to split transversely. The true hyaline cast is faint and watery, and is seen by shutting off the light. It is found wherever albumen is expected, and does not stain by iodine. There is a cast usually called a hyaline, though it is not, which is not so refractile as the waxy casts, that occurs in nephritis or long-standing renal trouble, and stands between the waxy and hyaline groups. Associated with this intermediate group are very translucent, fine granular casts. The waxy casts are the modified granular casts. These may be found from a normal kidney in the last few cubic centimeters of urine secreted after death when they were not present before death; also one can get waxy casts in all stases of the urine in the tubules. Fatty casts have large globules of fat in casts made up of cells. In the last five years every case of fatty casts in the Johns Hopkins Hospital was malarial. However, sometimes in nephritis the renal cells will be swollen with fat globules, and all transitions between cells and fatty cast formations can be seen. There may be globules of myelin degeneration in the cells. These do not take osmic acid, and may form a true myelin cast.

Cases were studied anatomically in which there had been a clinical diagnosis of nephritis. In cases of chronic passive congestion where there had been a clinical diagnosis of nephritis there were no anatomical evidences, though there were all varieties of waxy casts. In cases of cloudy swelling where there had been all varieties of casts there were no evidences of nephritis. Cases of fatty kidneys had been diagnosed nephritis. In 109 cases of acute nephritis the diagnosis could not be made except from the urine, but acute nephritis and exacerbations of chronic nephritis cannot be distinguished by urine alone. In acute parenchymatous nephritis, to make a diagnosis, one must have a history of the patient, a cast picture, and patient under 35 years. In chronic interstitial nephritis there were two types—the small white kidney and the small red kidney, the latter due chiefly to arteriosclerosis. In the cases of small red kidney the trace of albumen had been of longer duration than in the small white type, and the casts had disappeared first. In the small white type the albumen cleared up first. Of 18 cases of amyloid kidney one-fourth had large amounts of urine and albumen, but very few casts. The more acute the attack the more epithelial blood and pus casts are present. In the chronic attacks these disappear, and are replaced by waxy, hyaline, and granular casts. These cases can be followed by the casts alone.

Cylindruria, *i. e.,* presence of casts, may be present without albumen if the urine is examined fresh, centrifugalized, and carefully searched. A slight disturbance of the kidneys, *e. g.,* manipulation in some cases of palpation, may make casts and no albumen, or the reverse, or both, findable. The cases of chronic nephritis with history of small white kidney may have casts with no albumen. Of transient cylindrurias many have the class following the use of drugs, *e. g.,* sodium, salicylate, though the casts disappear as soon as the medicine stops. Alcohol in moderate doses will cause cylindruria in over one-half the cases; in others albuminuria. Ung. hydrarg. also may cause the pressure of casts. Many of the acute diseases, as erysipelas, scarlet fever, tonsilitis, and diphtheria, may have symptoms of nephritis, but in some conditions only casts can be found. The point to be emphasized is that the number of cases that show casts if looked for are many, and albuminuria is often present in practically normal urine. Showers of casts may appear in diabetic coma, sometimes without albumen; they appear suddenly. There are no epithelial or waxy casts, but those present are hyaline or purely granular. We may get showers in exacerbations in nephritis after diuretics, or, as a terminal, the last two or three days before death. In chronic constipation there may be found a pure cylindruria. It is an inflammatory or irritative process, not a degeneration that causes casts. The greatest number of casts are gotten from kidneys that are but slightly diseased. A most brilliant display of casts can be gotten by the disturbance of a normal cortex in a small granular kidney, and the least number when the cortex is extensively diseased. The more normal the cell the better its cast-producing quality. The number and kinds of casts are indications of

the temporary condition of a normal kidney. The specimen should be centrifugalized and examined carefully immediately after voiding instead of a 24-hour specimen. Epithelial, blood, and pus casts do not have so very much significance. Cells of casts should be studied as to whether they are epithelial cells or pus cells, for these casts are certainly present more often than recorded.

Dr. W. C. MacCallum, in discussion, said the fact that there is a less abundant supply of casts in the contracted kidney is because the epithelial cells are gone. The active process is in the large kidney, where there is a greater mass of degenerating epithelial cells. The large white and the small kidneys should not be so carefully subdivided, for they represent conditions more or less severe in different stages. There should be some uniformity of the casts in acute kidneys and the kidneys in exacerbation.

Demonstration of the Spirocheta Pallida.—Dr. Keidel demonstrated three specimens of spirocheta pallida. He said the organism was found in nearly all lesions of primary syphilis. One of the specimens was gotten from serum from a primary sore, the others from condylomata. They were stained with eosin azure after Chaudin's methods. The organism is not at all refractile. It is spiral, four to ten microns in length, one-quarter of a micron thick, with spirals about one micron apart. Spirocheta refringans can be easily differentiated from pallida by being coarser, the spirals being flat, more irregular, and undulatory. Refringans also stains easier, and is more refractile. Spirocheta pallida, which may be a protozoan, has not been cultivated on artificial media.

Book Reviews.

Obstetrics for Nurses. By Joseph B. De Lee, M.D., Professor of Obstetrics in the Northwestern University Medical School, Chicago; Lecturer in the Nurses' Training Schools of Mercy, Wesley, Provident, Cook County and Chicago Lying-in Hospitals. 12mo. of 460 pages, fully illustrated; cloth, $2.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

In the matter of illustrations this book has not been surpassed. Nearly all of these were made expressly for the book and they are remarkably good—so good, indeed, as to distract attention from the text. The book is divided into three parts, the first being devoted to the Anatomy and Physiology of the Reproductive System, the second to Labor and the Puerperium, and the third to the Pathology of Pregnancy, Labor and the Puerperium. There is a good appendix on visiting nursing, hospital nursing, home nursing, the obstetric nurse, and on dietetics. A good glossary and an index complete the work.

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BALTIMORE, JANUARY, 1906

THE MEDICAL PROFESSION AND THE ADVERTISERS IN MEDICAL JOURNALS.

MR. SAMUEL HOPKINS ADAMS, whose vigorous articles in *Collier's Weekly* are the most effective so far directed against the nostrum evil, delivered an address at the annual meeting of the Baltimore City Medical Society on December 5. Mr. Adams did not confine himself to the more impudent frauds among the proprietaries. He spoke of the modern method of establishing new ventures, which consists in first imposing upon the medical profession by fraudulent representations, and afterwards making direct appeal to the general public. He paid some attention to the professional accomplices (witting, unwitting, and witless) of the patent-medicine vendors.

After Mr. Adams' address the editor of the MARYLAND MEDICAL JOURNAL spoke on the relations of medical journals to the proprietary business. Mr. Adams' paper will appear in a later number of the MARYLAND MEDICAL JOURNAL, but the editor's remarks were impromptu, and will not be printed. His subject had been assigned by the president, and was in all respects appropriate. The editor's contention, briefly stated, was that the advertising pages of medical journals are responsible for much lazy or ignorant prescribing by physicians and for some mischievous self-drugging by lay people. This culpable responsibility might have been divided, but the speaker did not divide it. For purposes of illustration he had the pick of the medical journals of many lands, but all his illustrations were drawn from the pages of the MARYLAND MEDICAL JOURNAL. In this selection the speaker instinctively followed the scriptural formula for correct diagnosis of foreign bodies in the eye, and those who heard were filled with a painful sense of imperfections not their own.

After a brief discussion it was moved, without a dissenting voice, to appoint a committee to assist in revising the advertising pages of the MARYLAND MEDICAL JOURNAL. The JOURNAL has always desired to be as good as the profession which it serves, and with the assistance offered by the Baltimore City Medical Society this merit will be ours more easily.

A TRUNCATED PARABLE.

MR. FRANK STOCKTON used to impose very agreeable kinds of mental confusion upon his readers, and on account of their obfuscating qualities his stories have still a considerable vogue. A personal misadventure led the editor into an intellectual maze, of the Stockton variety, on December 5. This pleasant disorientation still persists, and, with it, a desire to communicate the infirmity. Perhaps this can be done by means of a story told by John Sharp Williams—a truncated tale which any man can complete to his own taste.

Homer Davenport, desiring to caricature the form and features of the Honorable David Culberson, took Mr. Culberson into his confidence, saying that he had long been trying vainly to make a satisfactory sketch of the Honorable John Sharp Williams. Mr. Culberson, willing to oblige the artist, offered to engage the attention of Mr. Williams at a time and place favorable to the purpose. This conspiracy went through to the artist's satisfaction and to the amusement of Mr. Culberson. A few days later, however, Mr. Williams was confronted by Mr. Culberson, deeply indignant and brandishing a Davenport cartoon. This cartoon, Mr. Williams says, displayed a most unholy and diabolical portrait of the Honorable David Culberson, member of Congress, leading an ugly pug dog. Mr. Culberson was enraged, especially at the dog, and asked Mr. Williams what he thought of the artist's performance, and especially of the inappropriateness and ugliness of the dog. Mr. Williams expressed no surprise at the exaggerated truthfulness of the Honorable David's likeness, and said that he remembered very well when and where the preliminary sketch was made. After regarding Mr. Williams' steely eyes for a moment or two, Mr. Culberson's conscience awoke and he needed strong drink. Mr. Williams does not admit that on a second inspection of the cartoon he recognized his own lineaments in the very clever caricature of a dog.

FISTS AND OTHER FETICHES OF MIDSHIPMEN.

In the logic of boyhood great respect is always paid to the argument of knuckles, and whatever is respected by boys should not be despised by men. The circumstances which bring boys to fisticuffs, weighed in the brainpan of a man, may seem trivial, but the specific gravity of a boy's ideas is determined by more sensitive scales in a finer medium. That modicum of grace and virtue which suffices for a man is seldom a *casus belli,* but in a boy's affairs every virtue and all the graces are at stake. To be a man is to conform to terrestrial standards, knowing neither good nor evil too intimately; to be a boy is to be encompassed by a firmament starred with heart's desires and to go rocketing after every indispensable, unattainable star. He who covets all possible rewards must not shirk the pains of heroic ambition, and so, in those celestial spaces there is always strife. Happily, the tender creatures seldom hurt each other. Predatory instincts are gradually subdued, and a boy is half-tamed before his chitinous armor is complete. But when the enraptured larvae swarm towards Mars, his star, their strife is fiercer, for every juicy grub must be full of strange oaths, jealous in honor, sudden and quick in quarrel, else, so the elders say, no fighting man will issue when his pupa shell is split.

In November two midshipmen tried to settle an important personal difficulty with their hands, standing up and fighting after the manner of white men. The question at issue was whether the challenger was, as the other middy alleged, a sneak and a coward. The argument was fair, that is, it conformed to the sophisticated standards of amateur ruffianism, and it established a very strong probability that the challenger was not a sneak nor a coward. Whatever satisfaction there might have been in winning the main point of his contention was lost to the winner because he was killed, and for the surviving combatant, the glory having inflicted more damage than

he sustained, was impaired by the court-martial which ensued. Let us examine this deplorable history from the standpoint of a boy.

When one is called a sneak or a coward it is proper to make answer with the fist. There are men old enough to question the soundness of this doctrine, but it is nevertheless a *quod semper, quod ubique, quod omnibus* dogma. In its simplest form this doctrine approves the violent answer at the time and place of insult, and most boys hold this faith, in its primitive simplicity, until they have learned manly or other means of avoiding both insult and assault. Boys of a certain age, however, like to invest these proceedings with elaborate dignity, and for this purpose adopt the challenge and other ceremonies of the code. In this way it may happen that a natural characteristic of childhood is caused to survive the period of its usefulness, and may become either a silly affectation or a mischievous anomaly of adolescence. The principals in the recent fight were not boys, except in so far as their training had checked their development in one line, causing larval traits to persist beyond the age at which, in normal evolution, they would have disappeared.

One of the admirable characteristics of the training school at Annapolis is its high respect for tradition. No single influence has done more to fix the Naval Academy type, and hardly any has imparted qualities more worthy of admiration. But this reverence for tradition, like its opposite, the familiar itch for novelty, involves special weaknesses in the matter of discrimination, and it is not surprising that the very young should exceed sober bounds in their worship of this fetich. It is inevitable that embryo admirals will require a shibboleth of every entered apprentice. Perhaps there is a kind of utility in some of the deferences and distinctions imposed by the younger upon the youngest. The service demands ability to overcome odds at every step, and the kind of selection which midshipmites may exercise is not altogether valueless. One dare not say that it was always unwise of the elders to allow the cadet corps plenty of liberty in self-government. But when diligent sophistication of childish ethics through many generations has resulted in the extravagant mysteries of a "code," and in the addition of injurious physical ordeals to the legitimate difficulties of professional training, it must be admitted that such excess is intolerable. Revelations following the recent fight at the Naval Academy leave no doubt that destructive excesses of this sort are rife, and that a critical situation confronts the naval authorities.

How shall these fearful possibilities be met? It is easier to say how not. Certainly not by any trip-hammer method. Men are not made at a drop-forge, though boys are plastic enough. It is a question for the Navy Department to answer. And it will be answered very badly if it be said that the difficulties can be solved without assistance by the same authorities who have been overtaken by such a crisis. Here is a pedagogic problem of the very first water, a problem in special pedagogy—naval pedagogy—yes, and naval pedagogy has on the whole been very successful. True, but it has completely broken down at this point, and the repairs are no job for an uncertified man, amateur or professional. The true answer to this vital question is to say that the qualified man has been found. He is a rare man. Possibly he is in the United States Navy, but he has no mate in an average million. Wherever he is he is wanted at Mr. Bonaparte's kindergarten.

The young recruit is 'aughty. 'E drafts from Gawd knows where.
They bids 'im roll 'is blanket straight and 'old 'is shoulders square.
'E calls it bloomin' nonsense. 'E doesn't know no more.
When up there comes the Company an' wipes 'im off the floor.

The young recruit is 'ammered. 'E takes it crool hard;
'E 'angs 'is 'ead and mutters, and mopes around the yard.
'E talks of doin' someone, 'e'll swing for by and by.
The men they 'ears and mocks 'im, and the boy goes off to cry.

Correspondence.

Baltimore, Md., December 8, 1905.

To the Editor Maryland Medical Journal:

Dear Sir — Since the Maryland Medical Journal has become the organ of the Medical and Chirurgical Faculty of Maryland I have often had the pleasure of looking into its pages, and I must say not without great benefit. However, I am sure it will not, under the circumstances, be out of the way for me to say that some of its articles might be edited much more carefully. For instance, there is another contribution in the number for December from the pen of the gentleman who perpetrated that linguistic monstrosity, "Awakeness," as if any single individual could arbitrarily create a new word! The present article is so full of strange compounds, forced meanings, odd substitutions of one part of speech for another, etc., that it can hardly be called English, or, if it is English, then it is not sufficiently good English to be worthy of a place in the Maryland Medical Journal. Cause of cancer (qualified or not) is better than "occasion of cancer." What is "weather chill?" Just glance at "Breast-fret," pronounce it quickly, and note the effect. It is very seldom, if ever, that I take the extreme liberty of criticising anybody's literary efforts, but I cannot but feel that our English language, the greatest language on earth, is rich enough in every way in its present form to enable us to express all our thoughts without exception clearly and fully without the necessity of distorting the meaning of its words, nor yet their application, and still less of arbitrarily coining new ones of any kind.

Sincerely yours,

Benjamin F. Grove, M.D.

P. S.—As a remedy I suggest the reading of Washington Irving and Dr. Watson.

[The two papers criticised by our correspondent were contributed to the Maryland Medical Journal, and not to the Faculty. They were accepted by the editor of the Journal because they were, in his opinion, good articles and acceptable to the readers of the Journal, including the members of the Medical and Chirurgical Faculty. The standards of English composition maintained by the Journal are those of its time, place, and people. To attempt much more than this might result in affectation; to do less would be disgraceful. "Awakeness," "weather chill," "breast-fret" are good enough for us, and their meanings are as clear as if the words were centuries old. Perhaps they will not survive long in medical literature, but having served the temporary need of the author and of his readers, they are welcome to their brief hour in the Maryland Medical Journal. Any contributor may use his own invention without editorial hindrance, provided he has ideas as definite as those of the writer in question, as good command as he of the current coin of language, and as honest metal in the new coinage which he offers.—Editor Maryland Medical Journal.]

Medical Items.

BALTIMORE.

Dr. Howard A. Kelly has gone, with four of his children, on a hunting and fishing trip in Florida.

Dr. Wm. H. Welch has been appointed a trustee of the Carnegie Institute to fill the vacancy caused by the death of John Hay.

At the meeting of the Baltimore City Medical Society on December 5 Dr. W. S. Thayer was elected president, and Dr. W. Edward Magruder, secretary.

Two hospitals are beneficiaries under the will of the late Mr. Wm. Ferguson. The Presbyterian Eye and Ear Hospital will receive $5000 and the Hospital for Consumptives at Towson will receive $10,000.

The annual meeting of the Instructive Visiting Nurses' Association was held on December 5. Addresses were made by Miss Damer, president of the Association of Nurses of the United States, and Dr. Llewellys F. Barker, professor of medicine in Johns Hopkins Medical School. The report showed that the eight

nurses of the Association have made 23,811 visits.

The graduates of Johns Hopkins Medical School have presented to Dr. Wm. Osler 12 quarto volumes of reprints of their published contributions to medical science in the last eight years. There are 465 separate articles.

Dr. Keirle's annual report of the Pasteur department of the Baltimore City Hospital is out. Leaving out of the account three persons who were attacked by rabies while treatment was in progress, there has been but one patient lost in 775 treated.

The Maryland Association for the Prevention and Relief of Tuberculosis will make a special campaign of education on the subject of house disinfection. The Association and the Laennec Society will have a joint meeting at McCoy Hall late in January to discuss tuberculosis in institutions.

Dr. Peter Henry Reiche of Govanstown was struck by a York Road car while crossing the tracks on the night of December 9, and died an hour or so later at the City Hospital, Baltimore. Dr. Reiche was a very well-known and highly-respected physician of Baltimore county. He graduated at the University of Maryland in 1869, and was 68 years of age at the time of his death.

The year 1905 ends with a considerable outbreak of smallpox in Baltimore and its eastern suburbs. Ten cases have been found in the city and half as many in the neighborhood of Dundalk, Baltimore county. We speak of this as a considerable outbreak. Compared with the experience of other cities the outbreak may seem inconsiderable. It is not generally known, for Baltimore has not advanced the claim, that this city has suffered less from smallpox than any American city of equal importance. The present outbreak ended a period of 18 months' complete exemption from smallpox. The Baltimore Health Department is wise enough to keep the people fully advised all the time. Any citizen who reads the papers may know the exact truth about smallpox. The Department is rewarded by safety from popular alarm. The headline artist cannot easily create panic in Baltimore.

Dr. George Warner Miltenberger, emeritus professor of obstetrics in the University of Maryland, died at his home in Baltimore on December 11, aged 86. This record marks the end of a remarkably active and useful professional life. Not many of the active medical men now practicing in Baltimore remember Dr. Miltenberger in the days of his extraordinary activity. It is doubtful if Baltimore had in the past century a busier practitioner. He was a marvel of tireless energy. Dr. Miltenberger graduated at the University of Maryland in 1840. From 1840 to 1847 he was demonstrator of anatomy in the University; from 1847 to 1852, lecturer on pathology; from 1852 to 1858, professor of materia medica and pathology; from 1858 to 1891, professor of obstetrics. In 1891 he ceased teaching, and soon after retired from practice. He served as dean of the University from 1855 to 1869. He was president of the Medical and Chirurgical Faculty in 1886-87. In 1886 a portrait of Dr. Miltenberger, painted by Thomas Corner, Jr., was presented to the Faculty, and Dr. Miltenberger made on that occasion his last public appearance. He was never more impressive. Those who were present were fortunate, for such occasions are most rare. Hardly anything could be more inspiring or more moving than the simplicity and earnestness in words and manner of this splendid old man in taking leave of the profession which he had so long adorned. The portrait is the very best thing of the sort owned by the Faculty. If it were not a faithful personal record, it would still be a remarkable work of art, and most appropriately hung in the hall of the Medical and Chirurgical Faculty.

MARYLAND.

The Allegany County Hospital was opened in Cumberland on December 8. The medical staff includes Drs. C. H. Brace, George L. Broadrup, Willis R. Hodges, C. L. Owens, E. H. White. The surgical staff includes Drs. E. B. Claybrooke, W. R. Foard, Henry S. Wailes, A. R. Hawkins, George L. Carder, and Edwin Harris. Drs. Robert Y. Fechtig and E. L. Jones are the specialists for diseases of the eye, ear, nose, and throat. Dr. W. R. Foard is pathologist to the hospital.

GENERAL.

Dr. Wm. Kroh, formerly of Baltimore, died at his home in Los Angeles, Cal., on December 11. Dr. Kroh graduated at the University of Maryland in 1886, and was 46 years of age.

The Tuberculosis Exhibition which was held in New York during the two weeks ending December 9 has been moved to Boston, where it will remain for two weeks, afterwards going to Philadelphia, and subsequently to other cities.

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ANCIENT AND MODERN THEORIES OF AGE.

By Marshall Langton Price, M.D.

AN ADDRESS BEFORE THE BALTIMORE COUNTY MEDICAL ASSOCIATION.

If we stand on the bank of some sluggish stream in the early afternoon of July and August, we may notice a filmy cloud obscuring the surface of the water like lint or cotton sustained by the passing breeze. If we examine closely, we will see each particle in individual motion, and find that this cloud consists, in fact, of numerous small, fragile, winged insects, darting actively about the surface of the water. These are the ephemerids, whose name is symbolic of their brief transient existence.

We may return the next day and search in vain for a sign of the insects of yesterday, unless by close examination we should find a few dead bodies upon the ground or floating upon the surface of the stream. A brief day has seen the birth and death of all these small and futile existences.

On each occasion we may see rising slowly in the water the reptilian head and filmy eyes of an ancient tortoise in whose senile regard there is neither interest nor speculation. He was there today and yesterday; he will be there tomorrow.

The images of two centuries' life in the stream have filtered through the cloudy cornea and lodged in that sluggish brain, yet the problem of the varied life in the stream will possess more significance to the man who has watched 15 minutes than to the reptile who has observed the changes of 150 years.

It is indeed a mystery as inscrutable as the ways of Providence that of two animals, both the product of the same sun and the same organic matter of the pond, one shall live 30,000 times the allotted span of the other's brief existence.

The problem is much more inscrutable when we consider the individual. We are all the product of cells, and attain our growth and maturity through their division and reproduction. Why, then, should the cells which have divided successfully 300 times fail to divide 3000 times, or why should the cells which have divided 3000

times fail to divide 3,000,000 times? We recognize the source of the cells' energy in certain proteids, hydrocarbons, carbohydrates, salts, and extractives with which we supply them, but how explain the time that comes when the most abundant supply of nutriment fails to inspire any further energy?

The body, as a machine, may be best compared with the steam engine, which, given a constant supply of coal and water, should apparently run on indefinitely, yet eventually comes to a standstill, though the boilers may be full of steam and the grates of burning coal.

The explanation is general for all energy-producing machines or chemical bodies—*the cessation of activity is due to loss of substance.* In the case of the steam engine the element lost has been the iron. It matters not whether the actual loss of iron has been large or small, the iron no longer exists as energy-producing machinery.

As you may infer from my title, I expect to deal with the ancient as well as modern theories of old age, but I find some embarrassment in approaching this phase of my subject on account of the difficulty in giving a clear conception of the ancient theories. Indeed, it is not clear in my own mind that I can properly appreciate much less present, the ideas of the older philosophers, so widely do the ancient and modern scientific viewpoints differ.

The Hebraic viewpoint of age was simple. They had no material theory to offer; they merely accepted as a rule of heaven that a man should reach a certain number of years and then die.

The observation of Moses set forth in the psalm, "The days of our age are threescore and ten years," is no fancy, but a fact, doubtless obtained from the Egyptian census, with which Moses must have been familiar in his capacity of priest. It is a fact in this day that more adults die between the ages of 65 and 70 years than at any other period of life.

The formulation of the more ancient ideas of age into a somewhat indefinite theory was due mainly to the alchemists. We can scarcely follow in these days the manner in which an observation originally correct and logical became lost in the mazes of symbolism and superstition constituting alchemy.

The development of the ancient theory of life was dependent upon the search of the alchemist for the philosopher's stone and the elixir of life.

To understand the fruitless search for these two substances it is necessary to attempt some formulation of the alchemist's beliefs.

There were, he believed, four elements—earth, air, fire, and water—and seven metals corresponding with the seven planets. The action of fire upon the metals produced earth, of which the human body was made. All the planets and all the minerals were living beings. The gases were souls or animating principles.

It can be inferred from this how the alchemists proposed to transmute the right kind of metals into the earth, forming the body

and replenish the exhausted vital principle of gas which endowed it with life.

This original conception of the ancient philosophers is easy to understand. They observed man from his birth to the grave, and noted his increase of strength and size up to a certain stage, then his decline and gradual dissolution. Their inference was both natural and logical that some principle present at birth had become dissipated during life. This theory was discredited when the general arguments of the alchemists were proven false, but it may be extricated again from beneath the distorted symbolism and extravagant fancy which buried it.

It may prove that the delusions of the alchemists are the antithesis of many of the modern insane delusions in that the alchemists argued falsely from correct premises, while the insane often argue correctly from false premises.

The modern theories of old age are mainly those held by Metschinkoff and the modifications instituted by his followers. These theories may be briefly classified under the head of the *inflammatory* or *toxic* theory of age.

I will summarize the essential points of Metschinkoff's theory briefly. This theory regards old age as a chronic toxemia originating mainly in the large intestine from the products of saphrophitic bacteria. The cells destroyed or rendered functionless by this intoxication are replaced by the more vigorous mesoblastic cells either by phagocytosis or the formation of scar tissue.

During the early part of this year I recognized the inadequacy of M. Metschinkoff's theory in explaining many of the phenomena connected with senility, and I formulated a theory which I believed to be in accordance with facts which I may speak of as the *vital-principle exhaustion theory of age*, in distinction to the *toxic* or *inflammatory theory of age*.

From our present knowledge we must admit the phenomenon of senility to be the effect of one of three causes:

First, that the failure of the cells is due to successive and repeated inflammations, and that as a result of this action of pathogenic organisms and toxins the specific cells are destroyed and are replaced by connective-tissue cells, with the formation of fibrous or scar tissue, which, of course, is unable to perform the functions of the cells which it replaces.

Second, that the failure of the cell is a nutritive one, the cell becoming unable, with the advance of time, to maintain and to continue those metabolic processes which are required of it in the performance of its special functions.

Third, that the failure of the cell is due to the loss of the properties which enable it to resist and to overcome the constant activities of pathogenic organisms and toxins.

Briefly summarized, my objections to Metschinkoff's theory were:

1. The occurrence of senile changes in organs and tissues never subjected to either inflammations or toxemias (such as the skin).

2. Degenerations, hyperplasies, and morbid growths in tissues and organs never subjected to inflammations or toxemias, and apparently independent of all conditions other than the actual state of senility.

3. The loss of the power of reproduction and regeneration. This latter factor follows a rule so definite that it may truly be spoken of as a law that *the regenerative power of the cells composing an organism are inversely proportional to the age of the organism.*

As regards the organs and tissues, the regenerative functions follow a rule so definite that it is not materially affected by the accidental *contretemps* directed against them, such as toxemias and inflammations, and may be also spoken of as a law, viz.:

The failure of regenerative function occurs first in the tissues of ectodemic origin, next in those of endodemic, and finally those of mesodemic origin.

Regenerative deficiency is first manifested in the nervous tissues, and the power of regeneration becomes deficient in them soon after the original differentiation of the cells.

Since the publication of my theory of age in July of this year 1905) I have accumulated additional data in its support and going to prove the inadequacy of Metschinkoff's inflammatory theory, and it is mainly this additional evidence which I wish to present to the Baltimore County Medical Association, but to elucidate the bearing of these data I will repeat the essentials of this theory:

1. *That every living cell, human or animal, contains a specific substance necessary to its functions.*

2. *That this substance becomes progressively exhausted during the life of the organism to a certain stage, beyond which the metabolic activities of the cell are brought to a close.*

3. *That this substance alone, of all the materials entering into the composition of the cell, is not renewed after a certain early stage of the life of the organism.*

4. *That the age and duration of the activities of the cell are dependent on the amount of this substance with which it is primarily endowed.*

5. *That the primary endowment of the cell occurs at a very early period of its growth.*

This substance I have called bioplasmine. Various considerations, too lengthy to explain in detail, have led me to infer that this body consists of a complex central molecule or radicle, having attached, in the manner of Erlich's side chains, a group of simpler molecules, which, when disassociated from the central radicle, form the essential nutritive bodies in the reproductive, bacteriolytic, antitoxic, and metabolic functions of the cell.

I classify these functions together because Metschinkoff has originally shown, and later those who have verified his experiments, that all of these functions are really modifications of the function of nutrition specifically adapted to the needs of the organism, and hence all have a common physical or chemical source.

The graphic formula of bioplasmine is shown in Fig. 1.

In this formula B. represents the central radicle proteid, or binding group, and N. the essential metabolic group spoken of as metaboline, or nutrescine.

I will briefly review my conception of the formation and absorption of this substance. The reasons for this assumption are also too lengthy to explain in full.

The anabolic processes involved in the synthesis of bioplasmine are probably numerous. I have shown graphically the three most striking periods in its formation.

It will be noted that the first of the processes indicated on the chart leading to the formation of bioplasmine is the chemical combination of two substances spoken of as oöplasmon and spermataplasmon, derived from the female and male sexual cells, respectively. The vital processes bringing these two substances into combination I regard as the impregnation of the female by the male cell.

It will be noted on the chart that this conjugation gives rise to the substance spoken of as bioplasminogen, and it will be further noted that a portion of this substance is absorbed by each of the cells. During the act of absorption bioplasminogen becomes further modified, and remains in this cell as *bioplasmine*, the specific vital principle. From this period may be dated the existence of the cell as a separate entity. It is henceforth thrown upon its own resources and will receive no further supply of the principle essential to its life.

A certain standard of efficiency is demanded of the cell in the performance of its function, and when it falls below this standard of function, nature, more kind or more cruel than society, eliminates the cell with a rapidity scarcely comparable to the slow removal of the unfit social element either by the action of parasitic organisms or by the substitution of a more vigorous cell.

The natural age of the cell is accordingly not to be measured by the actual time that has elapsed since the conjugation of its male and female ancestors nor by the number of generations which it represents in its successive reproductions, but only by the condition of its bioplasmine molecule, *i. e.*, the number of N. molecules which the latter contains. In accordance with this view I have graphically shown the young, middle-aged, and senile cells in the succeeding chart (Fig. 5).

The essence of the bioplasmine theory lies in the fact that as the bioplasmine molecule parts with successive N. bodies it becomes progressively more stable, and parts with its N. molecules with more and more difficulty, and on account of this fact we have the gradual depression of function noted in old age.

Probably the most striking manifestation of senility is the failure of the function of reproduction, generally feeble in the cells of mesodemic origin and lacking in those of endodemic and ectodemic origin.

It is generally assumed that mortality is an inevitable condition of all living organisms. Such is not, however, the case. Many unicellular organisms are practically immortal, and if (as frequently occurs) they perish, the cause is more often due to defects in the surrounding medium than to those inherent in the organism. In the case of one class of unicellular vegetable organisms, viz., the bacteria, reproduction will occur practically indefinitely if the organisms are successively transferred to a fresh nutritive medium. There is no tendency to decay inherent in these organisms.

Before presenting the additional evidence directed against Metschinkoff's theory it may be of some interest to give some figures regarding the duration of life in the animal and vegetable kingdoms. The evidence derived from the vegetable kingdom is of some importance, for while the analogy between vegetable life and the higher animal life is not strong, yet the conditions determining the duration of plant life can be somewhat definitely stated. The succulent plants are generally short-lived. The formation of wood is required for longevity.

The following table compiled by De Candolle indicates the longevity of trees:

Elm	355 years.	Olive	700 years.
Cypress	350 "	Cedar	800 "
Ivy	450 "	Lime	1100 "
Larch	576 "	Oak	1500 "
Chestnut	600 "	Yew	2880 "
Orange	630 "	Taxodium	4000 "
Palm	700 "	Baobob	5000 "

There are among animals some whose life considerably exceeds in duration that of man. Eagles and crows have been known to live 100 years, tortoises have been known to live 100 years, and some are supposed to have lived over 200 years.

Among mammals the elephant is supposed to attain the greatest age, reaching above 100 years.

The facts opposed to the inflammatory theory of age are here summarized. The difficulties in the way of incontrovertible evidence may be easily appreciated.

Generally speaking, the question at issue is the following:

Is age due to inflammation and toxemia pure and simple, or is it due to exhaustion during the wear and tear of life? The difficulty of a positive decision lies in the fact that all living organisms are subjected to both conditions. If we could raise some animal in an absolutely sterile environment, we might arrive at a more definite conclusion, but aside from the difficulty of producing such a condition, there is evidence that the action of certain of the bacteria

is helpful, if not essential, to the life of the organism that harbors them, nor can we draw any definite line in this regard between the pathogenic and saphrophytic organisms.

The bioplasmine theory recognizes both inflammations, intoxica-

Bioplasmine Fig 1.

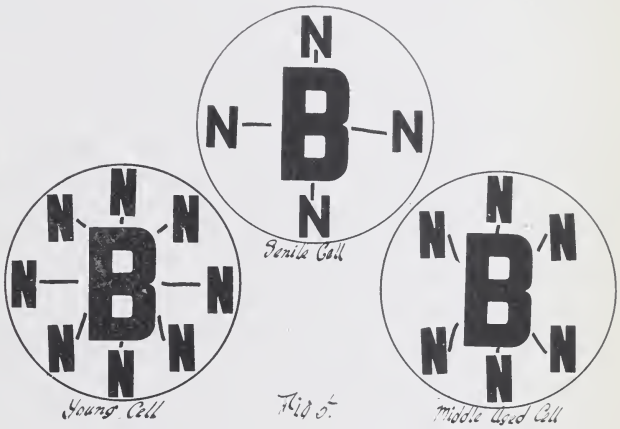
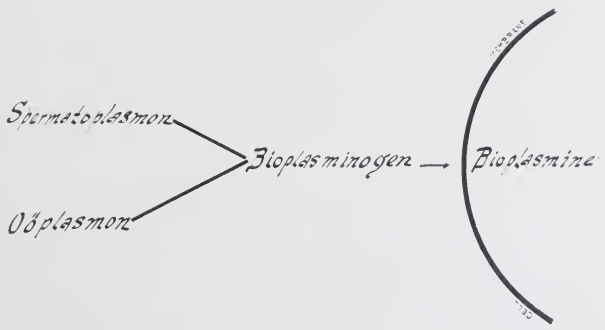


Fig 3.



Formation of Bioplasmine Fig 2.

tions, and stress due to growth and nutrition as factors in producing age.

The evidence opposed to the theories of Metschinkoff and his followers may be divided into two classes:

1. That derived from the vegetable kingdom.
2. That derived from the animal kingdom.

As regards that derived from vegetable sources we may consider:

First. The definite rules governing longevity in plants. Hufeland gives the following rules for longevity in plants:

1. It must grow slowly.
2. It must propagate slowly and late in life.
3. It must have a certain degree of solidity and hardness in its organs, a sufficiency of wood, and the sap must not be too watery.
4. It must be large and have a considerable extent of surface.
5. It must rise in the atmosphere.

Second. The general immunity of plants from parasites and toxins.

Third. The dependence of the failure of growth on definite chemical conditions in the environment.

In the case of the apple tree, for instance, a new lease of life may be provided by the action on the soil of iron filings and turning up the soil to the action of the air and sun.

In general the failure of the vegetable organism is due to deficiencies in the environment rather than inherent tendency to decay.

The evidence derived from the animal kingdom may be summarized as follows:

First. The necessary accumulation of toxines under Metschinkoff's theory.

This theory presupposes an accumulation of toxin in the cells as the primary cause of decay. If this condition exists, it follows that it is shared by the sexual cells (ovum and spermatozoon). The individual animal thus accumulates in its cells (a) the inherent supply derived from the parent organism, (b) a further supply derived from the maternal circulation, and (c) the normal toxin accumulated during its life. This accumulated toxin is inherited, in turn, by the cells of the descendants.

It will thus be seen that an accumulation of toxin would result in a few generations sufficient to arrest the life of the species.

Second. The duration of life in animals is directly dependent upon the development of ossification, the life of the animal being in general from four to five times the period of ossification. This condition has no dependence on inflammation.

Third. The duration of life is dependent in great extent upon the size of the animal. For example, the elephant is the longest lived among mammals.

Fourth. In many of the cold-blooded animals life is greatly prolonged by limitation of muscular, cerebral, and other metabolic activity. These conditions have also no dependence upon inflammation. In the frog, for example, the limitation of muscular movement and the lowering of the activity of the circulation and respiration will undoubtedly increase greatly the life of the animal.

As regards the state of suspended animation in these animals for prolonged periods I am not in a position to make a definite statement. I have read many times the oft-told tale of the living frog or toad excavated from a pocket of fossil coal, but as I have never been an eye-witness to such an occurrence, I can offer no evidence. Certainly, cold and diminished air supply will greatly prolong the existence of many of the lower animals.

Fifth. The hereditary nature of old age. In certain families it is recognized that senility will appear early. Thus members of a certain family may develop kidney disease early in life, or arterial changes may predominate, the members of the family perishing from cerebral apoplexy before the fourth or fifth decade.

Sixth. The independence of age upon marked general inflammations. In this class we have the chronic invalids, many of whom are proverbially long-lived, and many of whom have suffered through a considerable part of their lives with prolonged inflammations or suppurations, notably tuberculosis, intestinal and gastric disorders, and suppurations of the bones and skin.

Having presented this additional evidence, I may here draw my conclusions:

That the phenomenon known as senility is in the higher animals a condition of exhaustion of a specific vital principle contained in the cell, due to action of parasites and their products, toxins, and to the stress and wear incident to growth, reproduction, and other factors inevitable to life.

The final problem with which we are charged as medical men is in its elementary principles the *conservation, preservation, and increase of those metabolic functions of the cell whose sum total we recognize as the phenomenon of life.*

Circumstances have compelled us to deal with diseases rather than the underlying conditions which produce or allow disease and degeneration.

The problem of life is, according to the conceptions of modern physiologists, a problem of vital chemistry, and a knowledge of the nature of the chemical processes involved in living cells would be the first step in enabling us to influence or control them.

We cannot consider the art and science of medicine to rest on a satisfactory basis until we have mastered the elementary principles underlying senility.

I venture to predict that the problem will be attacked and solved by the physiological chemists of the next 30 centuries unless one of those catastrophes common in the course of history should again destroy the structure of civilization erected by so many labors and trials and the future generations be returned again to barbarism.

Current Literature.

REVIEW IN PATHOLOGY.

Under the Supervision of José L. Hirsh, M.D., Baltimore.

REVIEW OF THE THIRD REPORT OF THE CAROLINE BREWER CROFT CANCER COMMISSION OF THE HARVARD MEDICAL SCHOOL.

I. *A Contribution to the Classification of Tumors.*—F. B. Mallory.

This paper represents the beginning of an attempt at a classification of tumors based on a more careful study of the histological differentiation of their cells and intercellular substances than has as yet been made. What is here reported is the result of a study of three kinds of fibrils produced by normal and tumor cells, and of the bearing of these fibrils on the classification of the tumors containing them. These particular tumors fall into three groups—the neuroglia fibrils of the neuroglia cells, the myoglia fibrils of smooth-muscle cells, and the fibroglia fibrils of connective-tissue cells. These tumors are selected because of their morphological relationship to each other and because the histological staining methods used have proved more productive with them than with other tumors. However, it is impossible at the present time to differentiate between these three kinds of fibrils by means of their staining reactions alone. Their relation to the cell and their morphology must also be taken into consideration.

These fibers touch or form part of the periphery of the cell protoplasm, but continue away from the cell in two directions, *i. e.*, they do not begin or end in the cell which produces them. Away from the cell to which they owe their existence, neuroglia and fibroglia fibrils seem to be free of the protoplasm of other cells, but myoglia fibrils seem to run along other muscle cells or to join the fibrils produced by them. Of these three kinds of fibrils, it may be said in general that the fibroglia fibrils are the finest, the myoglia fibrils the most sensitive to post-mostem changes. In tumors which arise from neuroglia, smooth-muscle or connective-tissue, the cells tend to differentiate in nucleus, cytoplasm, and intercellular substance in the same way as the corresponding normal cells do, but the differentiation is most complete in those tumors which are growing most slowly. Even in the most rapidly-growing tumors, however, the differentiation is usually, perhaps, always far enough advanced to identify the character of the cells, provided the tumor tissue is properly fixed after removal by operation. All tumors, no matter how slowly or how rapidly they are growing, in which the cells tend to differentiate alike in cell and intercellular substance should be included under one heading and treated as a definite entity in order that the common characteristics may be rendered prominent.

II. *On the Nature of Cell-Inclusion of Cancer.*—Robert B. Greenough.

In this paper the writer reviews the previous work which has been done by himself and other workers on the subject, together with the various hypotheses which have been advanced concerning the nature of these inclusions. A study of 481 specimens are summarized as follows:

1. Cell-inclusions are almost always present in cancer of glandular origin.
2. They are almost invariably absent in sarcoma.
3. They do not occur in epithelioma.
4. They are found in hypernephroma.
5. They are found in non-cancerous lesions of the mammary gland.
6. They are found occasionally in other gland epithelium in non-cancerous conditions.

The characteristics of cell-inclusions of cancer may be considered as to the occurrence, form, size, characteristic staining, situation in the cell, and the relation to cell division and mitosis.

The conclusions from this study are as follows:

1. The typical cell-inclusions of cancer are practically constant in cancer of glandular origin.
2. They are not found in epithelioma, and are almost invariably absent in sarcoma.
3. Their size, structure, and staining reactions are such as to justify the assumption that they are vacuoles in the cell protoplasm, containing a material which is coagulated and shrunken by the use of tissue fixatives.
4. The occurrence of vacuoles of this nature is chiefly a phenomenon of cell-secretion.
5. Similar vacuoles may be produced, however, in certain cases by phagocytosis and by degenerations of the nucleus.
6. Secretion vacuoles of the form of typical cancer cell-inclusions are found in certain non-cancerous diseases of the mammary gland.
7. In such cases the secretion vacuole occupies a position between the nucleus and the lumen of the gland.
8. The inclusions in adenocarcinoma occupy a similar position bteween the nucleus and the lumen of the gland.
9. In more advanced carcinoma the gland lumen is lost. The secretion vacuole cannot escape, and remains within the cancer cell to undergo further increase and ultimate degeneration.
10. Cell-secretion is a function which is lost in the progressive anaplasia of cancer cell, and cell-inclusions are more frequent in slow-growing cancer, and are less numerous in advanced cancer with rapid cell-division.
11. No reason exists for the interpretation of these appearances as of parasitic origin.

III. *The Effects of the Röntgen Ray Upon Cancer.*—Vose and Howe.

In this paper the writers have summarized the clinical results

and the histological findings in about 128 cases of carcinoma treated by the *x*-ray. From this investigation it seems that cutaneous cancer treated by *x*-ray undergoes a degeneration not peculiar to this form of treatment or distinguishable histologically from degeneration from other causes. The vascular changes are limited to an endarteritis. New formation of blood-vessels occurs if healing takes place, as in the process of repair elsewhere. There is an increase of elastic tissue, and mitotic forms are less abundant after treatment.

Clinically, taken as a whole, the clinical cases show:

1. That the only cure of cancer by *x*-ray is by destruction and exfoliation. This at once limits its value to superficial cases.

2. That this destructive process is a slow one and acts very superficially. Since it is well known that many essentially chronic superficial dermoid cancers may be removed permanently by the slightest surgical procedure, that course seems preferable to the somewhat tedious treatment by *x*-ray, and as they both may fail, an extensive surgical operation, if necessary, may be undertaken more promptly in the former case.

3. That being non-selective in its action, the *x*-ray cannot be used strongly enough to effect destruction of anything but the shallowest tumors without serious injury to the overlying and surrounding tissues, or, in other words, producing such a burn as experience shows in all probability never would heal.

IV. *Implantation of Tissues and Its Relation to Cancer.*—E. H. Nichols.

This paper presents the results of a series of implantations of tissue in 62 animals. The implanted tissues were chiefly epithelial, although some mesenchymal tissues were used. The experiments were undertaken to see if epithelial or mesenchymal tissue set free from their normal environment could acquire the power of unlimited growth and give rise to the formation of metastases. In some cases the implanted tissue proliferated, maintained their vitality, and produced nodules analogous to dermoid cysts or teratomata, and some of the nodules were of large size. In no case was any nodule produced with unlimited growth or the formation of local or glandular metastases.

Theories concerning the possible origin of cancer can be grouped under two general heads—first, the parasitic theory, the advocates of which hold that the epithelial proliferation seen in cancer is the result of the presence of specific parasites which have the power of stimulating the irregular overgrowth of epithelium; second, the bioliogical theory, the advocates of which hold that the epithelial proliferation in cancer is due to the development of inherent or acquired peculiarities of the cells themselves, so that the cells become not only capable of indefinite multiplication, but are also capable of living in abnormal relationship as regards the other body cells, and thus become of themselves capable of living a parasitic existence. The writer discusses in some detail the general

arguments for the parasitic origin of cancer, and from a consideration of the facts presented it may be said that (1) the relative increase of cancer is disputed, and not proved; (2) local causes of the origin are improbable; (3) the metastases in cancer, although taking place by the same routes as the metastases in infectious diseases, are of an absolutely different origin, and constitute the strongest theoretical argument against infectious or parasitic origin; (4) the cachexia in cancer, probably, is not entirely due to the character of the cancer itself, but is often dependent upon secondary infection; (5) there is no proof of the transfer of cancer from one human being to another by contact; (6) transplantation of cancer from one animal to another of the same species is well verified; (7) the production by any known parasite of epithelial proliferation analogous to cancer has not been demonstrated.

Under the heading of special reasons for the belief in parasitic origin of cancer the writer discusses the blastomycetic theory and the protozoan theory. As to the former, it has been rather definitely established that these bodies have no relationship to cancer.

The evidence that protozoa are the cause of cancer can be divided into three heads: Some believe that the cancer bodies are protozoa because of their alleged similarity to known protozoan parasites; others have claimed to have cultivated the alleged organisms and to produce cancerous tumors by inoculating animals; still others have believed that a certain protozoan, the *Plasmodiophora brassica,* produces in plants cell-changes analogous to the epithelial proliferation seen in cancer, and that, therefore, it is conceivable that the epithelial proliferation in cancer also may be due to a protozoon. On the whole, it may be said that a settlement of the question on a morphological basis alone is very unlikely, especially in dealing with a disease the incubation of which is unknown and the early stages of which so seldom can be studied. Moreover, there is no proof that any known protozoon produces a proliferation of epithelial cells analogous to the epithelial proliferation in cancer, nor has there been any verified, indisputable or convincing proof of the production of cancer by any of the so-called protozoon cancer parasites, nor has there been any successful isolation, cultivation, and inoculation of any cancer protozoon in accordance with Koch's laws. As regards protozoon parasites, it must be acknowledged that as yet it is practically impossible to present proof of their parasitic nature in the way that it is demanded in the case of bacterial parasites. It is very probable that these so-called parasites are simply secretion vacuoles or other products of cell-activity.

Opposed to those who believe that the epithelial proliferation in cancer is due to the action of a parasite are many men who believe that it is due to the development of inherent or acquired peculiarities of the cells themselves, and that the proliferation of the tumor cells can be explained on biological grounds. The writer discusses the theories of Thiersch, Cohnheim, Ribbert, Bashford, and Murray. On the whole, in regard to these theories of the origin of malignant and benign tumors, it may be said that such hypotheses,

or a combination of them, is at present supported by a considerable number of clinical and experimental facts that certain tumors can be produced experimentally under the condition of the hypotheses, and that in one doubtful case a truly malignant tumor appeared, and, finally, that fetal tissues undoubtedly have a much greater inherent power of growth than do adult tissues. Too late to allow of verification by other men, certain observations have been made which give support to the theory that cancers may be considered to be a parasitic individual engrafted on a normal individual, and that they are produced by the conjugation of cells in a way analogous to the conjugation of sexual cells which produce a normal individual. Farmer, Moore, and Walker investigated cancers and concluded that the reduction in the number of chromosomes in the mitosing cells took place in the same way as in the ripening of the sexual cells of the animals and plants, and that the number of these chromosomes were half as numerous as in the somatic cells.

Nichols reports the results of his own experiments which were undertaken to see if by any means normal epithelial or other tissue, either fetal or adult, freed from its original environment, could maintain its power of growth and lead to the formation of anything which could be considered analogous to a tumor, *i. e.,* tissue with unlimited power of growth. The experiments fall into the following groups: The implantation of testicular, ovarian, renal, and liver epithelium in the same animal; the implantation of adrenal tissue into the kidney of the same animal; implantation of adult or fetal epidermis into the same animal; implantation of adult uterine epithelium, pregnant and non-pregnant, into the same animal; implantation of placental tissue into the same (maternal) animal, and implantation of fetal cartilage into the same (maternal) animal. This work is summarized as follows:

1. Certain types of epithelium (epidermis), both adult and fetal, can be experimentally removed from their normal position and implanted into another part of the same animal, and under those circumstances can maintain their "potentiality of growth," retain their own peculiar character, and produce nodules analogous to dermoid cysts or more complicated teratomata.

2. In no case has any epithelium of a highly differentiated function been seen to maintain its power of growth or to proliferate.

3. The "potentiality of growth" is greater in the case of fetal than it is in adult tissue.

4. In no case has any infiltration of surrounding tissue by the transplanted epithelium been seen, nor any tendency to epithelial metastasis.

5. Certain fetal connective tissues (cartilage) can be transplanted in the same way as epithelial tissues and retain their "potentiality of growth."

6. Transplanted fetal tissues do not reproduce the stage of development at which they are transplanted, but tend to reproduce the ultimate stage of their normal development.

PROCEEDINGS

OF THE

MEDICAL AND CHIRURGICAL FACULTY

OF MARYLAND

MEETING OF THE HOUSE OF DELEGATES.

THE eleventh meeting of the House of Delegates was called to order by President Earle, Saturday, December 16, at 8.30 P. M., in the hall of the Faculty.

There were present Drs. Earle, Taneyhill, O'Donovan, Woods, Cushing, Craighill, Gichner, Gardner, Johnson, Linthicum, Watson, Harrison, Ruhräh, and Dr. J. T. Smith by invitation.

Dr. Ruhräh stated that the object of the meeting was to consider the resolution of the joint meeting of the Council, State Board of Medical Examiners, Legislative Committee, and Committee on New Medical Law, to reconsider the advisability of asking the Legislature for a new medical practice act.

Dr. Earle explained the situation to the House, after which Dr. Taneyhill moved to reconsider the former action of the House of Delegates. Seconded by Dr. Johnson and carried.

Dr. Woods moved that the House of Delegates decide not to take the law to the State Legislature this year. Seconded by Dr. Craighill.

Dr. Johnson offered an amendment; said "that it was inadvisable" to carry the law to the Legislature. This amendment was accepted and carried.

The secretary stated the results of the meeting of the Committee on New Building.

Dr. O'Donovan moved that the Legislature be asked for an appropriation of $25,000 toward a building for the Medical and Chirurgical Faculty. Seconded by Dr. Cushing and carried.

Dr. Taneyhill spoke of the advisability of having a larger Legislative

Committee, and moved that the President appoint an auxiliary committee of as many as he should see fit. Seconded by Dr. Woods and carried.

The President then said that he asked Dr. J. T. Smith to offer some resolutions on the deaths of Drs. Miltenberger and Reiche.

Dr. Smith then read his resolutions, which were discussed by Drs. Johnson, Gardner, Smith, Craighill, and Taneyhill.

Dr. Linthicum moved that the resolutions be postponed until the annual meeting, as had been the custom of the Faculty. Seconded by Dr. Craighill and carried.

Dr. Ruhräh presented the following resolution, which was unanimously carried:

"WHEREAS the manufacture of and commerce in misbranded and adulterated foods, drugs, and beverages has assumed great importance and threatens commercial honesty and the health and welfare of the people; therefore, be it

"*Resolved by the Medical and Chirurgical Faculty of the State of Maryland,* That our senators and representatives in Congress be requested to use every reasonable means to secure the enactment by the National Congress of a law regulating foreign and interstate commerce in adulterated and misbranded foods, drugs, and beverages.

"*Resolved*, That a copy of this action be sent to each senator and member of Congress from this State.

"*Resolved*, That individual members of this society be requested to use every personal influence with their senators and members of Congress to secure the action above mentioned."

The meeting then adjourned.

A MEETING of the Allegany County Medical Society was held January 9, 1906. The program was especially good, as the papers were both entertaining and instructive.

The resolution in reference to misbranded and adulterated foods, drugs, and beverages was read and adopted, and an amendment passed that the president of the society appoint a committee to see in person our congressman and other representatives, urging the passage of such a bill.

The membership of the Proprietary Association of America was read as found in the *Journal of the American Medical Association* of November 18, and resolutions adopted that no drug or preparation manufactured or sold by any of the companies whose names are to be found on said list shall be prescribed or used by members of this society. We urge similar action being taken by other societies. We also enter our protest to the MARYLAND MEDICAL JOURNAL against accepting advertising from any of the members of the above-mentioned Association, deeming it an imposition to ask Congress to regulate the sale of misbranded foods, drugs, and beverages while we permit the official medium of our society to encourage their sale by inserting their advertisements, for in the December number of the JOURNAL are to be found fifteen advertisements from just such companies as our resolutions are trying to kill. We hope that you will take this matter up and that we will have clean advertisements as well as clean reading matter in our JOURNAL.

We also ask that in the next issue of the JOURNAL the membership of the Proprietary Association be published as found in the *Journal of the American Medical Association* of November 18.

Very truly yours,

WILLIAM R. FOARD,
Secretary.

ON November 2 Dr. S. T. Earle, the president of the Medical and Chirurgical Faculty, addressed the members of the Somerset County Medical Society at Crisfield, Md., on the advantages to be derived from organization and of membership in the county medical societies. A large part of the members were present and thoroughly enjoyed Dr. Earle's remarks. As this was a postponed spring meeting, after the address of the State president the business of the meeting was proceeded with. On account of the removal of Dr. M. W. Goldsborough, the secretary, to Cambridge, it was necessary to elect a new secretary. On motion of Dr. C. W. Wainwright of Princess Anne, Dr. R. L. Hoyt of Oriole was elected to fill the vacancy. After the routine business had been transacted the society adjourned after the most interesting meeting ever held in this county.

THE officers of the Washington County Medical Society for the year 1905-1906 are as follows: President, Dr. L. H. Keller; vice-president, Dr. W. S. Richardson; secretary, Dr. V. D. Miller, Jr.; treasurer, Dr. H. K. Derr; censor for one year, Dr. D. C. R. Miller; censor for two years, Dr. J. McP. Scott; censor for three years, Dr. V. M. Reichard.

THE regular quarterly meeting of the Howard County Medical Society was held at the Howard House, Ellicott City, January 2, 1906, with 12 members present. The meeting was called to order by the president, Dr. S. A. Nichols. Drs. L. M. Allen and J. M. B. Roland of Baltimore addressed the meeting on "Toxemia of Pregnancy and Eclampsia," followed by general discussion.

THE Anne Arundel County Medical Society met at the Maryland Hotel, Annapolis, Md., Tuesday, December 19, 1905, at 11 o'clock A. M. After routine business, Dr. Joseph C. Gichner of Baltimore gave a talk on the needs of the Medical and Chirurgical Faculty of Maryland, after which he delivered a very interesting address on the "Prevalence, Etiology, Symptoms, and Treatment of Myocarditis." A vote of thanks was tendered Dr. Gichner for his very interesting and able address. Several clinical cases were discussed, after which the society adjourned.

Those present included the following: Drs. W. Clement Claude of Annapolis, F. H. Thompson of Annapolis, C. H. Brook of Brooklyn, S. S. Hepburn of Annapolis, B. R. Davidson of Davidsonville, J. J. Murphy of Annapolis, C. R. Winterson of Elkridge, H. B. Gantt of Millersville, J. O. Purvis of Annapolis, J. W. DuBois of Millersville, Louis B. Henkel of Annapolis, and Joseph C. Gichner of Baltimore.

MEDICAL SUPPORT OF NOSTRUMS.

By Samuel Hopkins Adams.

Most patent medicines take their rise from the medical profession. A physician devises some combination of drugs which he uses with effect, real or imagined, in his practice. Dr. Bunn's mixture acquires a considerable local fame. One day it occurs to the doctor that he can make a good thing of that mixture by selling it beyond the little circle of his immediate practice. So he goes to the United States Patent Office and obtains, not a patent, for that would necessitate his giving out the formula, but trade-mark registration. In the matter of mere trade-mark registration the Patent Office is not interested as to the component parts of the remedy. For all the government cares, Dr. Bunn's medicine may be composed of nitroglycerine and assafetida, or, more innocently, of ashes and glue. What are you going to call it? is the only question the Patent Office asks. "Bunn's Bowel Balm" says the applicant. Over the records goes an industrious clerk to discover if any previous Bunn has ever entered a claim to a bowel balm, finds none, issues a certificate, and the job is done. Another regular has broken away from the profession into quackery, and another nostrum been launched at the vitals of the public. Such is, in essentials, the origin of Peruna, which is Dr. Hartman's variation of the old-time Beech's Neutralizing Mixture. To be sure, the variation is a wide one now, because when Dr. Hartman came to realize that the really essential thing in his proprietary was its exhilarant quality, he promptly discarded the rest of the drugs (leaving just enough so that he could say they were there), and pinned his faith to cologne spirits and water, with what brilliant results the newspaper advertisements testify most eloquently. Here, by the way, is another great advantage in simply copyrighting a proprietary—one can alter the formula *ad libitum*.

In other cases the physician himself gets no good of his invention. Two drug clerks several years ago heard one physician advise another to try a prescription of mixed acetanilid, caffeine, and bicarbonate of soda in cases of headache. It sounded profitable to the drug clerks. They got together a little capital, organized their business, and put out the mixture under the name of Antikamnia. Now, Antikamnia sounds quite ethical, because it's Greek. It is ethical only in that it contrives to keep its advertising in the medical journals. As a matter of fact, this proprietary began its career on a basis of deception, and it has been consistently and profitably lying ever since. No nostrum in the long list has ever more completely befooled the medical profession. Yet it is the medical profession that supports it, and has now so firmly established it that if ever the support is withdrawn the nostrum can, and undoubtedly will, flare forth in the public prints with all the backing it needs. Consult the newspaper medical-advertising columns and see if you cannot find there today several proprietaries which a few years ago were strictly "ethical," then send for their "literature,"

and you will encounter some interesting reading in the form of testimonials from physicians.

Medical testimonials are very easy to get in the so-called "ethical" field. But they don't seem very impressive when one comes to look into them. For a layman I have a considerable acquaintance among the medical profession in various parts of the country, yet in a wide reading of nostrum literature I have met with the name of only one doctor whom I personally knew appended to an "ethical" testimonial. That doctor was a druggist—on the side. I hope I am not doing him an injustice in surmising that he received liberal terms in his dealings with the company whose products he exploited. By this I do not mean to imply that all medical testimonials are paid for either in cash or in trade, but that some of them are there is plentiful evidence. A firm which advertises extensively in the medical journals writes me that they constantly receive letters from physicians in regular practice mildly commending their products and offering to write extended favorable reports for a suitable consideration. This the obliging doctor designates as "paying for his time."

The geographical location of the physicians who lend their names to testimonials is interesting, perhaps even significant. Take Ozomulsion, for instance, which was formerly an "ethical" remedy. Here are some of the typical towns from which its medical support comes: Muncie, Ind.; Nunda, N. Y.; Stanley, N. Y.; Marion, Ind.; Woodstock, Va.; Elgin, Ill.; Jackson, Tenn.; Albion, Mich.; Somerset, Ind.; Battle Creek, Mich.; East Syracuse, N. Y.; Kittery, Maine; Elida, Ohio; Bridgeton, N. J.; Morgantown, N. C.; Paris, Texas; Flint, Mich., etc.

Curiously enough, it is just this class of places that furnishes the familiar "God-bless-Peruna" letters which appear in the dailies. If this has any special meaning, it would seem to be that the order of intelligence which prevails in the small town finds similar expression both in the layman and the physician. In this I do not wish to be understood as slurring the country practitioner. At his best I believe him to be in courage, charity, and self-sacrifice the flower of your profession. But am I mistaken in assuming that the average small-town doctor is below the general type? What these men wrote regarding Ozomulsion is innocent enough in substance, but the harmful feature is that they are helping with their own names and professional influence a fraud. It is a fraud because it advertises unqualifiedly to cure consumption. I don't know whether either of these gentlemen is here tonight, but in their absence or silence I shall assume that neither would wish to support the statement that Ozomulsion cures consumption.

One physician I have met who does support it, though with difficulty. For purposes of identification I will call him Smith, which happens to be his name. He is the consulting physician of the Ozomulsion Company, in a purely ethical capacity he assures me. It took me 15 minutes of direct and repeated questioning, very much in the nature of a cross-examination, to pin Dr. Smith down

to a plain statement of belief that Ozomulsion would cure consumption, and even then he qualified his *credo* with the phrase "in many cases." This was after he had attempted to wiggle away from the point of the interview by saying that "in the early stages of the disease" Ozomulsion would be efficacious, and that it did not "claim to cure consumption." Confronted with the sweeping assertions of the newspaper advertising, he admitted that his ethical employment did not include any supervision of this vital branch, and that he had never even seen the advertisement under discussion. Inferior as is the status of the physicians who hire out to patent-medicine concerns, few of them, so far as my experience goes, will personally support the extravagant claims made by their employers. Even Dr. Hartman, who is a singularly frank and open person outside of his advertising, assured me that Peruna never *cured* any disease. His theory is that the alcohol in the mixture cheers up the patient (which is indubitably the fact), that the advertising claims inspire faith, and that the combination of faith and jag, "trust and bust," to put it broadly, does the business. This theory, I may add, is for private use only, and is not approved by Peruna's advertising manager.

Foreign testimony from men of standing is much easier to obtain than domestic. Why this should be so has puzzled me for some time, but I discovered the reason while investigating that remarkable fake germ-killer, Liquozone. The Liquozone Company announced that it had secured the services of Professor Pouchet of Paris as their scientific representative in France. My first impression was that Professor Pouchet was probably another home-made myth, like the famous German savant, Professor Pauli, whom Liquozone created and subsequently dissipated. Inquiry showed, however, that there really is a Prof. G. Pouchet of Paris, that he holds a responsible position under the government, and that, although not a scientist of the first rank, he stands well professionally. *Collier's* sent its Paris representative to interview Professor Pouchet.

"Have you lent your name to any patent medicine, Professor?" asked the interviewer.

"I? No; I do not do that sort of thing."

"Then the Liquozone Company is using your name without authority?"

"Ah, the Liquozone Company? That matter is in process."

"Then you are doing some work for them, and they are authorized to use your name in America?"

A translation, giving the spirit rather than the letter of the learned professor's next remark, is best couched in a familiar American idiom:

"America! I don't give a damn for America! Nobody knows me in America."

There, I fancy, we have the attitude of the average foreign specialist toward American patent medicines which pay liberally.

Liquozone, by the way, has some interesting scientific backing.

The chemists who lend their support to it are mostly regular employes or stockholders. Several physicians whose names were used in support of Liquozone's claims I wrote to. One was a veterinary, one was an advertising cancer doctor, one was a guide and cook for hunting parties, one spelled diabetes double-e-t-e-s, and complained that his letter had been garbled, which it had. Another I could get no trace of. Out of the whole lot there was one from a hospital physician which looked impressive. It was a report on the bactericidal qualities of Liquozone as shown by culture-tube experiment. I looked up the doctor. The report was correct, he said; "but," he added, "I told the Liquozone agent for whom I made the tests that, internally administered, the preparation would be worthless or worse," which rather took the bloom off that particular "testimonial."

Hospitals of a certain class are quite amenable to dubious financial influences; in fact, some of these institutions, unless I am greatly in error, live upon patent medicines—parasites upon a parasitic industry. Take, for example, the Suffolk Hospital and Dispensary of Boston. This is presided over by a gentleman named A. C. Smith. President Smith writes a testimonial for Liquozone. I write Mr. Smith asking if the testimonial is genuine. In return he assures me that Liquozone is used constantly in the Suffolk Hospital and Dispensary with the most brilliant results. Then he writes to the Liquozone Company for more free consignments. A pretended patient goes to the Suffolk Hospital and Dispensary asking for Liquozone. The medical authorities—note, if you please, that President Smith is not a physician—state that Liquozone has never been used at the hospital. Query: What does President A. C. Smith do with his free consignments of Liquozone? That he doesn't drink it all is attested by the fact that he is still alive. Also this same Smith writes testimonials to Duffy's Malt Whiskey, Warner's Safe Cure and Orangeine, and receives free consignments. If he doesn't receive them as frequently as he thinks proper, he has no hesitancy in mentioning the fact. To say that President Smith of the Suffolk Hospital and Dispensary sells the nostrums to druggists for his own profit might be libelous; to inquire of President Smith what he does with the patent medicines would be merely pardonable curiosity. Unfortunately, there appears to be nobody in Boston authorized to make this inquiry.

Hospital endorsements are not all of this class. Two years ago Duffy's Malt Whiskey sent an agent through Pennsylvania to visit hospitals and get their testimonials—a difficult matter, one might suppose. But this agent was himself a regular physician, a graduate of the University of Vermont, and apparently an adept at his particular business. His method was to send in his card to a member of the staff, ask to see the wards and the operating-room, compliment his host on the condition of the place, and finally produce a bottle of his whiskey and suggest a drink. If permitted, he would leave half a dozen bottles. All that was asked in return was a line from the hospital surgeon stating that he had used Duffy's and

found it good. The visitor assured his host that this letter was not for publication. Subsequently a score of these hospital testimonials were published by the whiskey firm in the form of a huge "broadside." Inquiries sent to the various hospitals elicited denials, couched in varying forms of indignation and horror, that Duffy's Malt Whiskey had ever been used in the institutions, but the authenticity of the letters was not denied. "Unauthorized" was the plea of most of the hospitals, and it is apparently an honest one.

For such methods of support to organized charlatanry as I have thus far outlined I have no remedy to suggest. What influences of professional or social ostracism can be brought to bear upon offenders along these lines is a matter for your medical societies to determine. It might be worth while for physicians in each city to know just which of their fellow-practitioners are prostituting themselves to this trade. Perhaps the *Journal of the American Medical Association* might supplement its list of the proprietary associations of America by a list of physicians owned by the proprietary associations.

Indignant disgust is the sentiment aroused in the medical breast by the patent-medicine advertising in the daily papers. Very right. But what about the patent medicines advertised in the medical press? Ah, but that is addressed to the profession alone, you say. Is that a sufficient excuse for extravagant claims, fraudulent exploitation, and direct misstatement of vital facts? I think I can point out all of these in nine-tenths of the reputable medical publications in America. Take the Liquozone advertising, for comparison. Its principal claim—that which makes it ludicrous in the eyes of every intelligent person—is that it destroys germs in the blood, that it is deadly to vegetable matter, harmless to animal, and so eradicates the cause of all germ diseases. Very well. I will now read to you extracts from three advertisements clipped from prominent medical journals:

Zymoticine—"Will prevent microbic proliferation in the bloodstreams, and acts as an efficient eliminator of those germs and their toxins which are already present."

Acetozone (this is under a big display head of "Typhoid Fever")—"It is promptly destructive to germ life, yet is harmless to the human organism when taken internally."

Keimol—"A positive germicide and antiseptic. Is efficient when used either externally or internally."

Gentlemen, there are three internal germicides, so-claimed, which seem to my untutored lay mind to be about parallel to Liquozone's demands on one's credulity as far as they go.

Nor is the consumption cure lacking in ethical advertising. "McArthur's Syrup of Hypophosphites" "has proved itself (I am quoting) time and time again to be positively beneficial in this condition in the hands of prominent observers, clinicians, and, what is more, average practicing physicians, hundreds of whom have writ-

ten us their admiring encomiums in its behalf, *and it is the enthusiastic conviction of many that its effect is truly specific.*"

In criticising this advertisement I would ask only if anyone here believes that there is a true specific for tuberculosis. Again, we have a "sure cure for dropsy." "Hygeia Presents Her Latest Discovery" declares the advertisement, and fortifies it with a picture worthy of Swamp Root or Lydia Pinkham. If Anasarcin is in truth a sure cure for dropsy, then the medical profession is delinquent in that there are still uncured cases in every city and town. If not, what does the medical journal which prints this flamboyant half-page think of the profession, that it lends the support of its columns to such a claim?

So much for fraud and exaggeration. Now for dangerous deception. I wish I might have the aid of a stereopticon to show the Antikamnia advertisement which I hold here. Probably most of you are familiar with it, however. A gate is shown, cross-barred with the letters "A. K.," above which a tabloid moon, similarly inscribed, illuminates with its effulgence the legend, "No Pain Beyond This Gate." Below is the inscription, "Pain Finds Relief in Antikamnia Tablets," followed by three lines of direct and comprehensive misstatement:

"Do not depress the heart."

"Do not produce habit."

"Are accurate, safe, sure."

Let us analyze these claims. In the first place, Antikamnia, which depends for its effect upon acetanilid, does depress the heart. Only thus can it produce any result. Second, it does, like all the acetanilid preparations, produce habit if long persisted in. Third, it is anything but accurate, it is never safe, and it is sure only in its heart-depressant tendency, and even then in varying degrees. So we have five direct lies in three lines of print—a triumph of condemnation not excelled by any lay-journal advertising known to me.

Does this sort of exploitation fool the physician? Surely it must deceive many or the shrewd advertiser would not waste his money on it. Yet it plainly lies within the power of the profession to put an end to it. To be sure, the medical journal, like every other publication, depends upon its advertising for support, but the advertising depends upon circulation for results. Let medical opinion once make itself emphatically heard upon this point, and even those publications that are directly controlled by the advertising interests, such as the *New York Medical Journal*, for instance, which is published by an advertising agency, will perforce purge themselves of open fraud.

From suggestion to criticism is but a step, and for the moment I am going to assume the privilege of plain speech and point out what seems to me a vital weakness of the medical opposition to patent medicines. You have not, as a profession, an intelligent idea of the forces which you are fighting. Since entering upon this field of work I have received from physicians enough fundamental

misinformation to keep me in jail for the rest of my natural life on libel charges had I accepted one-tenth of it. To mention a few typical cases: A New York practitioner whose name is a familiar one, probably, to all of you assured a group of men at a club where I was present that Peruna was loaded with cocaine. I inquired the source of his information, and was told that recent analyses agreed on the fact. There is, of course, no cocaine in Peruna. A St. Louis doctor wrote me that the real Dr. Hartman of Peruna fame was dead, and that the "young man" who had taken his place is an impostor. The present Dr. Hartman isn't any younger than 76. He is the real, original Peruna article, and makes no pretence of being other than he is—a whole-souled, unashamed, honest-spoken old quack. Probably a dozen physicians have spoken to me about the cocaine in Coco-Cola. The cocaine in Coco-Cola is like the snakes in Ireland—there's none there. Two or three men particularly interested in tuberculosis have suggested that I attack Piso's Consumption Cure on the ground that it contains opium. It may be true that the Piso nostrum once contained opium; it doesn't any longer. Unless the old analyses are all false, the formula was changed many years ago.

Such cases as these show how dangerously swift the profession is to jump at conclusions. You are fighting a very keen and powerful enemy in the patent-medicine man, or rather you are just beginning to fight him, for you have let him take the aggressive thus far. There is little about your profession that he doesn't know. When he misrepresents you he does it shrewdly. There is little about his profession that you do know. When you misrepresent him you do it unintentionally and clumsily. Your effective weapon is the truth, and you haven't yet found it. Through reckless statements you are in danger of forfeiting that public confidence which should be your most potent ally. Find out where the foe is before you strike. Don't hit out with your eyes shut.

Here I may perhaps be pardoned if I say a word regarding the attitude of the magazines which have entered upon this fight. And I cannot begin better than by quoting the words of one of the ablest representatives of the patent-medicine business, Dr. Charles H. Stowell, general manager of the J. C. Ayer Company, which makes Ayer's Pectoral, Ayer's Sarsaparilla, and other nostrums:

"In every line of business but ours the proprietor urges upon the purchaser the closest examination and the most thorough investigation. 'All wool and a yard wide' is a business phrase which every honest merchant is only too glad to employ as his motto. The proprietary-medicine business is about the only business on the face of the earth where the people deliberately engage in a serious game of 'blind man's bluff,' hoping thereby to catch something which shall prevent a possible break in the family circle.

"But, you say, 'How is it with the medical profession? They never tell anything!' Indeed they do tell, and every prescription proves it. Although the prescription may be written in Latin, or the technical name of the drugs may be given (and for the best of reasons), yet the person who has the prescription can most certainly ascertain the meaning of every term. Of course, we must grant that there are times when it is best for the physician to hide from the patient the nature of the remedy. But we must remember that the doctor deals with the most acute, the most critical, the most desperate of cases. The turn of the hand may mean success or failure. Life itself may depend upon what is done during the next 30 minutes, or even less time than that. This cannot be said of proprietary medicines. Hence the exception noted above only the better proves the rule. Let us give each and every ingredient in our medicines, with the precise amount of said ingredients in a given quantity of the finished product.

"If we use alcohol, let us say so. Honesty and frankness, with intrinsic merit, recently elected a man to the Presidency of these United States, and honesty and frankness will elect into popular and continued favor any genuine, worthy medicine. If all reputable houses would only engage in such an endeavor, we could wipe out forever a great lot of miserable, useless, and even dangerous compounds that are now causing, directly or indirectly, the annual loss of thousands and thousands of lives, to say nothing of the millions of dollars stolen from our honest, hard-working citizens."

All this and more to the same effect Dr. Stowell said in an address at the last meeting of the Proprietary Association of America. Add to it the corollary which the speaker evidently had in mind, that the open truths about the composition of proprietaries would lead to the suppression of the dangerous ones, and we have pretty clearly defined the objective point toward which the lay journal may properly work; not beyond that I believe. A number of correspondents have written me complaining that my view of the issue is too narrow; that the real, fundamental evil lies in the principle of self-medication. This may be true. Personally, I do not care to drug myself. But as a journalist I cannot see that my profession is called upon to go into a question so dubious and delicate, even, in a sense, so academic and technical, as that of self-medication. In the broad field of human activity morals, not ethics, are the concern of the higher journalism. If we can help to uncover fraud where it exists, if we can warn against hidden agencies of destruction, there we may strive rightly and properly. But we are not fighting the doctor's battles in this patent-medicine campaign. Nor is there need that we should. Once my profession succeeds in driving the foe into the open the fight is over for us. We may turn

our guns upon other strongholds and leave to you the determination of this issue.

There is plenty of work cut out for you gentlemen of the medical profession—those of you who are willing to take a hand in the fight. For the fight is coming, and soon. This spring there will be introduced in many State legislatures a patent-medicine bill looking to an effectual guardianship of the public health. The Proprietary Association of America will fight it with all the power of a daily press held in varying degrees of subserviency. Its political agents, by well-practiced methods, will bring enormous pressure to bear. Yet I believe that if the physician will stand behind this bill, not alone as a physician, but as a citizen with a vote and a voice for the betterment of his Commonwealth, a number of other States will follow the lead of North Dakota and so restrict the nostrum business within the bounds of decency and fair dealing that fraud and poison will become unprofitable in those markets. In preparation for the fight, let me urge you again to arm yourselves with such facts in the case as are obtainable. The American Medical Association, through its specially-constituted board, is in a fair way to inform you as to the remedies which are advertised to you direct. But you will meet in your practice the open quack nostrums. Why not extend the campaign of enlightenment to them? To inquire into the content of every new proprietary that appears will be expensive, it is true, but it will be decreasingly expensive, because as the field of knowledge broadens the nostrum trade will contract. And is it not worth the endeavor of the combined medical forces of America, working through some adequately equipped committee, to discover and publish the true nature of every quack remedy as soon as its challenge is heralded in the advertising columns of the daily press?

The greatest present hope is in legislation. I should like to see every medical organization in the country appoint a committee on legislation, made up of its most representative members. Then, when the battle is joined in the legislatures, there would be no more of such apathy on the part of your profession as left the supporters of the recent patent-medicine bill in Massachusetts without the backing of so much as one medical delegation. Today the Proprietary Association of America is rent with dissensions. Some of its leading spirits have deserted it. There was never before so brilliant an opportunity for the enemies of fraudulent nostrums. The attack will be launched from many quarters; the forces of quackery will be divided beyond hope of that concentration of influence and intimidation which have heretofore won its victories. This will be no guerilla warfare, but an organized and formidable plan of campaign. If the medical profession will mobilize its forces and for once speak its mind in the legislative halls, we shall see the effectual crippling of a traffic which takes its cynical profit from suffering and death.

MEDICAL AND CHIRURGICAL FACULTY OF THE STATE OF MARYLAND.

THIS month we publish the list of members of the Baltimore City Society of the Medical and Chirurgical Faculty of Maryland The list of members of the county societies will be published later.

We call attention to the necessity of promptly notifying the Secretary, 847 North Eutaw street, of any change of address.

Abel, John J.,
Station L,
Charles st. ave.
Abercrombie, John R.,
827 N. Eutaw st.
Abercrombie, R. T.,
Church Home and
Infirmary.
Adams, F. B.,
2124 St. Paul st.
Adams, James F.,
1314 N. Charles st.
Adler, Harry,
1804 Madison ave.
Ahroon, Carl R.,
1621 Linden ave.
Algire, Harry C.,
340 Roland ave.
Allen, L. M.,
211 W. Madison st.
Amberg, Samuel,
1220 Linden ave.
Andre, J. Ridg.,
2021 St. Paul st.
Aronsohn, T. A.,
1601 Linden ave.
Arthur, Harry H.,
1516 Lexington st.
Ashby, T. A.,
1125 Madison ave.
Athey, C. N.,
2 Hudson st. ext.
Atkinson, A. Duval,
21 W. Chase st.
Atkinson I. E.,
609 Cathedral st.
Baer, W. S.,
714 Park ave.
Baetjer, Frederick H.,
714 Park ave.
Ballard, Edwin Kemp,
1622 Mt. Royal ave.
Barker, L. F.,
6 E. Franklin st.
Barnes, Wm. M.,
1525 W. Lanvale st.
Barrett, Arthur G.,
1631 Madison ave.
Baxley, H. M.,
1126 W. North ave.
Beck, Harvey G.,
214 E. Preston st.
Belt, S. J.,
314 N. Exeter st.
Berkley, Harry J.,
1305 Park ave.
Bevan, C. F.,
807 Cathedral st.
Biedler, H. H.,
119 W. Saratoga st.
Bishop, John S.,
1122 Madison ave.
Blake, Charles F.,
1523 E. Baltimore st.
Blake, J. D.,
1014 W. Lafayette ave.
Blaney, Wm. J. F.,
110 S. Gilmor st.
Bloodgood, J. C.,
904 N. Charles st.
Blum, Joseph,
1816 Madison ave.
Bolgiano, Walton,
2020 N. Charles st.
Bolton, John H.,
1201 N. Broadway.
Bombaugh, C. C.,
836 Park ave.
Bond, A. K.,
803 Park ave.
Bond, J. A.,
518 Park ave.
Bond, S. B.,
6 W. Read st.
Booker, W. D.,
208 W. Monument st.
Bordley, James, Jr.,
19 E. Mt. Royal ave.
Bosley, James,
The Severn.
Brack, Chas. Emil,
500 E. 20th st.
Branham, J. H.,
2200 Futaw Place.
Branin, Charles N.,
400 Hanover st.
Bressler, F. C.,
1713 Bank st.
Brinton, Wilmer,
1232 N. Calvert st.
Brown, Francis E.,
926 E. Eager st.
Brown, Thos. R.,
17 W. Biddle st.
Browne, B. B.,
510 Park ave.
Browne, Jennie N.,
510 Park ave.
Bubert, Charles H.,
1100 W. Lafayette ave.
Buck, Jeffries,
1127 N. Caroline st.
Buckler, H. Warren,
806 Cathedral st.
Buckler, Thomas H.,
807 St. Paul st.
Buckner, C. T.,
1337 E. North ave.
Butler, John C.,
1809 N. Charles st.
Byers, Wm. E.,
1715 W. Lexington st.
Cairnes, Geo. H.,
21 W. 25th st.
Cannon, Thomas Harris,
401 N. Fulton ave.
Carpenter, Frances A.,
521 Hanover st.
Carroll, J. J.,
114 W. Franklin st.
Caruthers, F.,
2229 E. Baltimore st.
Caspari, Wm.,
1603 Madison ave.
Cathell, D. W.,
1308 N. Charles st.
Cathell, W. T.,
1308 N. Charles st.
Chambers, Albert T.,
614 S. Paca st.
Chambers, J. W.,
18 W. Franklin st.
Chatard, J. A.,
113 W. Lanvale st.
Chew, S. C.,
215 W. Lanvale st.
Chisolm, Frank M.,
114 W. Franklin st.
Chunn, Wm. P.,
1023 Madison ave.

Claggett, J. E.,
2937 St. Paul st.
Clewell, A. A.,
1741 Harford ave.
Cohen, Lee,
1622 Madison ave.
Cole, J. W.,
735 N. Fulton ave.
Cole, Rufus I.,
6 E. Franklin st.
Cone, Claribel,
2326 Eutaw Place.
Cone, Sydney M.,
2326 Eutaw Place.
Conradi, F. A.,
212 S. Ann st.
Conser, Charles Carlisle,
1424 N. Fulton ave.
Cook, Carlton M.,
1061 Myrtle ave.
Cooke, Theodore,
914 N. Charles st.
Cooke, Theo., Jr.,
1808 N. Charles st.
Cordell, Eugene F.,
855 N. Eutaw st.
Cotton, Albertus,
1119 E. Baltimore st.
Craighill, James M.,
1730 N. Charles st.
Cromwell, M. J.,
516 Park ave.
Crouch, J. F.,
412 Cathedral st.
Cullen, Thomas S.,
3 W. Preston st.
Cushing, Harvey W.,
3 W. Franklin st.
Dabney, William Minor,
1005 N. Charles st.
Dashiell, N. L.,
2340 Madison ave.
Dausch, P. G.,
121 Jackson Place.
Davis, C. R.,
923 N. Carrollton ave.
Davis, H. C.,
819 Park ave.
Davis, John Staige,
1215 Cathedral st.
Davis, S. G.,
1230 Light st.
Dawson, Percy M.,
109 N. Broadway.
Deetjen, Christian,
21 W. Franklin st.
Delevett, J. M.,
621 Columbia ave.
Demarco, Salvatore,
1604 Linden ave.
Dickey, Ezra A.,
2136 Frederick ave.
Dill, P. G.,
1324 W. Lombard st.
Dobbin, Geo. W.,
56 W. Biddle st.
Dobyns, Frederick,
304 W. Fayette st.
Dohme, Gustavus C.,
1808 Guilford ave.
Douglas, Eugene,
830 W. North ave.
Duker, Otto,
928 E. North ave.
Earle, Samuel T.,
1431 Linden ave.
Eastman, Lewis M., Jr.,
2024 Maryland ave.
Edmonds, Page,
630 N. Gilmor st.
Eilau, E. W.,
1908 Madison ave.
Ellis, A. Lee,
922 Madison ave.
Emerson, Chas. P.,
Johns Hopkins Hosp.
Ensor, C. B.,
3921 Park Heights ave.
Erich, Louise,
613 Park ave.
Feddeman, W. H.,
102 Chestnut ave.
Fenby, E. B.,
1219 N. Caroline st.
Finney, J. M. T.,
1300 Eutaw Place.
Fisher, J. S.,
10 E. Read st.
Fisher, William A., Jr.,
8 W. Mt. Vernon Place.
Fiske, John D.,
102 N. Gay st.
Fitzhugh, Henry M.,
211 W. Madison st.
Fleming, Geo. A.,
1018 Madison ave.
Flinder, Harris C.,
1119 E. Baltimore st.
Forsythe, Hugh,
424 E. North ave.
Ford, Wm. W.,
209 E. Mt. Royal ave.
Frames, W. W.,
701 Cathedral st.
France, Joseph I.,
718 N. Charles st.
Franklin, Chas. M.,
610 Cathedral st.
Franks, H. Lee,
1228 S Charles st.
Freedom, Adolph G.,
411 Sharp st.
Freeman, Elmer B.,
623 Columbia ave.
Friedenwald, Harry,
1029 Madison ave.
Friedenwald, Julius,
7 W. Franklin st.
Fulton, J. S.,
2211 St. Paul st.
Funck, J. W.,
1631 Eutaw Place.
Futcher, Thomas B.,
3 W. Franklin st.
Gaddess, Harry W.,
2631 Greenmount ave.
Gabriel, Calvin N.,
2402 St. Paul st.
Gaither, Abram B.,
527 N. Charles st.
Gale, Henry E.,
260 W. Hoffman st.
Gamble, Cary B., Jr.,
26 W. Biddle st.
Gardner, Isaac H.,
333 N. Gilmor st.
Gardner, Wm. S.,
6 W. Preston st.
Garrison, W. Miles,
1257 N. Broadway.
Gately, Joseph Edward,
111 S. Broadway.
Gavin, Frank D.,
The Church Home and Infirmary.
Getz, Charles,
1111 W. Lanvale st.
Gibbons, E. E.,
1102 W. Lafayette ave.
Gibbs, E. C.,
316 E. North ave.
Gichner, Joseph E.,
1516 Madison ave.
Gilchrist, T. C.,
317 N. Charles st.
Girdwood, John,
1811 E. Baltimore st.
Goldsborough, Francis C.,
924 St. Paul st.
Gombel, W. G.,
835 W. Fayette st.
Gorsuch, H. Kepler,
207 N. Liberty st.
Gorsuch, Howard S.,
501 E. 22d st.
Gorter, Nathan R.,
1 W. Biddle st.
Green, Wm.,
1124 N. Charles st.
Greenbaum, Harry S.,
1614 Eutaw Place.
Grimes, J. H.,
114 W. 21st st.
Grimes, S. Butler,
1754 Park ave.

Gross, Harry,
1340 S. Charles st.
Grove, B. F.,
1302 N. Caroline st.
Hall, Reverdy M.,
1019 Druid Hill ave.
Hall, Wm. S.,
849 Park ave.
Halsted, Wm. S.,
1201 Eutaw Place.
Hamburger, Louis P.,
1210 Eutaw Place.
Hamman, Louis V.,
21 W. Franklin st.
Hammerbacher, G. H.,
Light st., cor. Warren av.
Harlan, Herbert,
516 Cathedral st.
Harris, Chas. C.,
857 N. Eutaw st.
Harris, John C.,
773 W. Lexington st.
Harrison, A. C.,
3 W. North ave.
Hartman, G. A.,
1121 N. Caroline st.
Hartman, Jacob H.,
5 W. Franklin st.
Hartman, Dr. J. H.,
City Hospital.
Hayden, Benjamin S.,
408 N. Exeter st.
Hayden, H. H.,
1425 Light st.
Hayward, Eugene C.,
1230 N. Caroline st.
Hebb, Arthur,
2011 E. Pratt st.
Heldrich, Philip,
2151 Wilkins ave.
Hemmeter, J. C.,
1734 Linden ave.
Hempel, J. F.,
1103 Valley st.
Herring, Arthur P.,
1317 Madison ave.
Hirsh, Jose L.,
1819 Linden ave.
Hirshberg, Leonard K.,
1937 Madison ave.
Hobelmann, Fred. W.,
310 N. Paca st.
Hoffman, Robert,
1325 Park ave.
Holland, J. W.,
1530 Linden ave.
Hollyday, J. G.,
714 Frederick ave.
Hood, M. B.,
608 N. Gilmor st.
Hoopes, Fannie E.,
906 N. Calvert st.
Hopkinson, B. Merrill,
1423 Bolton st.
Horn, August,
732 W. Mulberry st.
Houck, H. C.,
1922 Pennsylvania ave.
Houlton, S. S.,
W. North ave. nr. 12th st.
Howard, Wm. T.,
804 Madison ave.
Howell, William H.,
232 W. Lanvale st.
Huck, John G.,
647 W. Lafayette ave.
Hundley, J. M.,
1009 Cathedral st.
Hunner, Guy LeRoy,
1420 Eutaw Place.
Hurd, Henry M.,
Johns Hopkins Hosp.
Hurdon, Elizabeth,
1315 N. Charles st.
Hyde, Harry C.,
1100 E. North ave.
Iglehart, J. D.,
211 W. Lanvale st.
Iglehart, N. E. B.,
16 W. Preston st.
Ingle, J. L.,
1007 W. Lanvale st.
Jacobs, Henry Barton,
11 W. Mt. Vernon Pl.
Jay, John G.,
869 Park ave.
Jenkins, Felix,
400 Cathedral st.
Johnson, R. W.,
101 W. Franklin st.
Johnston, Richard H.,
819 Park ave.
Johnston, Samuel,
204 W. Monument st.
Jones, C. Frank,
1744 W. North ave.
Jones, C. Hampson,
2515 St. Paul st.
Josephson, Joseph C.,
230 S. Bond st.
Kahn, Howard,
2027 W. Pratt st.
Kahn, Samuel,
1510 E. Fort ave.
Keidel, Albert,
1 W. Eager st.
Keirle, N. G.,
1419 W. Lexington st.
Keller, Charles J.,
222 W. Monument st.
Kelly, Howard A.,
1418 Eutaw Place.
Kennard, Henry W.,
1222 Mt. Royal ave.
Keown, T. W.,
1938 Linden ave.
King, J. T.,
1425 Eutaw Place.
Kintzing, Pearce,
1823 N. Charles st.
Kirby, F. J.,
1807 N. Charles st.
Knapp, Hubert C.,
1214 E. Preston st.
Knight, L. W.,
414 N. Greene st.
Knipp, H. E.,
1002 W. Lanvale st.
Knorr, Ernst A.,
1727 W. Lombard st.
Knox, J. H. M., Jr.,
804 Cathedral st.
Krozer, John J. R.,
662 W. Lexington st.
LaBarre, John P.,
1903 W. North ave.
Lang, John F.,
933 W. Fayette st.
Larned, C. W.,
1327 Park ave.
Latimer, Caroline W.,
25 W. Chase st.
Latimer, T. S.,
211 W. Monument st.
Lazenby, Maurice,
800 W. North ave.
Lehnert, Ernest C.,
1419 E. Eager st.
Lewis, Howard D.,
22 W. 25th st.
Lewis, Wm. M.,
1220 Linden ave.
Likes, Sylvan H.,
26 W. Franklin st.
Linthicum, G. Milton,
1818 N. Charles st.
Litsinger, G. M.,
212 W. Franklin st.
Lockard, G. Carroll,
1700 W. Lafayette ave.
Lockwood, W. F.,
8 E. Eager st.
Lord, J. Williams,
1011 N. Charles st.
Luetscher, J. A.,
1025 Madison ave.
Lumpkin, Jas. C.,
653 Columbia ave.
Lumpkin, T. M.,
602 S. Paca st.
McAvoy, M. J.,
839 S. Canton st.
MacCallum, W. G.,
Johns Hopkins Hosp.

MacCalman, Duncan,
Cor. Fremont and
Fayette sts.
McCleary, Standish,
1609 Linden ave.
McConachie, A. D.,
805 N. Charles st.
McCormick, Thomas P.,
1421 Eutaw Place.
McCrae, Thomas,
807 St. Paul st.
McDevitt, Edward P.,
208 Aisquith st.
Macdonald, A. W.,
1501 N. Broadway.
McDonald, Wm. B.,
1305 Linden ave.
McDowell, Charles C.,
1521 W. Fayette st.
McGlannan, Alexius,
2005 Madison ave.
Mackenzie, John N.,
605 N. Charles st.
McNeer, Richard L.,
1227 N. Calvert st.
Marden, Tilghman B.,
2910 Huntingdon ave.
Magruder, W. Edward,
922 Madison ave.
Marshall, Harry Taylor,
5 W. Chase st.
Martin, Frank,
1000 Cathedral st.
Martin, Patrick F.,
649 W. Lafayette ave.
Mayer, A. H. A.,
1618 Madison ave.
Mellus, Edward L.,
19 E. Chase st.
Merrick, S. K.,
824 Park ave.
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522 S. Sharp st.
Milbourne, Leander B.,
16 S. Gilmor st.
Miller, Irving,
1734 St. Paul st.
Miller, Wm. Ernst,
2239 Pennsylvania ave.
Mills, Jas. J.,
853 Park ave.
Mitchell, Chas. W.,
1002 Cathedral st.
Mitchell, Geo. W.,
913 N. Broadway.
Morgan, Wilbur P.,
315 W. Monument st.
Morse, Elizabeth,
115 W. Barre st.
Moseley, W. E.,
301 W. Monument st.
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Muse, Bernard P.,
1002 Edmondson ave.
Muse, Joseph E.,
855 Columbia ave.
Neale, L. Ernest,
108 E. Read st.
Neer, Charles S.,
619 S. Patterson Pk. av.
Neff, John,
701 N. Carrollton ave.
Nolen, Charles F.,
114 W. Franklin st.
Norment, R. B.,
3543 Chestnut ave.
Novak, Emil,
800 N. Broadway.
O'Donovan, Chas.,
10 E. Read st.
Ohle, H. C.,
1203 W. Fayette st.
Opie, Thomas,
1630 E. Fayette st.
Orem, F. Strattner,
836 W. North ave.
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1621 Linden ave.
Page, Isham R.,
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Pancoast, O. B.,
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333 N. Charles st.
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1301 Madison ave.
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649 W. Franklin st.
Platt, W. B.,
802 Cathedral st.
Pleasants, J. Hall,
16 W. Chase st.
Plummer, Edward,
539 N. Fulton ave.
Pole, A. C.,
2038 Madison ave.
Pollack, Flora,
112 W. Mt. Royal ave.
Pound, John C.,
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Preston, Geo. J.,
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Price, M. L.,
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Purdum, H. D.,
Bay View Asylum.
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Richardson, Thos. L.,
211 W. 25th st.
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Ries, A. Ferdinand,
213 S. Bond st.
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1113 Madison ave.
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611 Park ave.
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1116 St. Paul st.
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726 E. Preston st.
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Rosenheim, Sylvan,
522 N. Charles st.
Rosenthal, Lewis J.,
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Rosenthal, Melvin S.,
211 W. Franklin st.
Rowland, J. M. H.,
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951 Madison ave.
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449 E. 22d st.
Scholl, G. Barr,
1005 W. Lanvale st.
Schuessler, F. W.,
1013 S. Canton st.
Schwatka, John B.,
1003 N. Broadway.
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1920 Linden ave.
Sellman, W. A. B.,
5 E. Biddle st.
Shannon, G. C.,
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3528 Chestnut ave.
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The Cecil, Eutaw st.
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Spruill, St. Clair,
1002 Cathedral st.
Steuart, C. C.,
122 W. 23d st.
Steuart, George Hume,
40 E. 27th st.
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1639 N. Calvert st.
Street, David,
712 Park ave.
Strobel, Edgar R.,
37 E. North ave.
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1432 Highland ave.
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317 N. Carrollton ave.
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1007 Cathedral st.
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1228 Madison ave.
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Todd, Martillus L.,
1202 E. Monument st.
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8 W. Madison st.
Tumbleson, Arthur L.,
2013 Bank st.
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1026 Edmondson ave.
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661 W. Fayette st.
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1725 Park ave.
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11 N. Carey st.
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5 W. Preston st.
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Wegefarth, Geo. C.,
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Wilson, H. M.,
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INDIGESTION. By George Herschell, M.D., London. Chicago: W. T. Keener & Co.; London: Henry J. Glaisher.

The third edition of this eminently practical book has appeared, and, due to the tremendous advances in the field of the digestive disorders, Herschell has been obliged to almost entirely rewrite the book. The book is extremely practical, and should prove of very great value to the general practitioner, as the subject is discussed largely from the point of view of symptomatology. The chapters in the book are devoted to a discussion of the following subjects: The Process of Normal Digestion; The Nature and Concept of Indigestion; Symptoms and Their Mode of Production; Indigestion Due to Improper Food; Abnormalities in the Food Which Interfere With Digestion; Acute Indigestion; Chronic Indigestion; Hyperchlorhydria; Hypersecretion; Chronic Mucous Catarrh; Myasthenia; Atony of the Stomach, or Gastric Myasthenia; Dilatation of the Stomach; Nervous Indigestion, or Gastric Neurasthenia; Modern Intragastric Methods of Diagnosis; On the Preparation of Food by Cooking, With Especial Reference to Its Use in the Treatment of Affections of the Stomach.

A great deal of space is devoted to the subject of treatment, and all the most modern methods of gastrictherapy are incorporated. B.

Society Reports.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD NOVEMBER 20, 1905.

Dr. W. C. MacCallum, president; Dr. C. H. Hunting, secretary.

Report of Cases Illustrated of Gastric Surgery—Dr. J. C. Bloodgood.

In the absence of Dr. Bloodgood, Dr. Sauers showed one case of adenocarcinoma of stomach. The patient was a male, 43 years old, admitted to the hospital in June complaining of pain in the umbilical area, which had grown worse since Christmas. He had had discomfort for two years, and during the last year had lost 40 pounds in weight. He had had six attacks of vomiting after attacks of pain, and not associated with eating. He had quit work in December, and had taken no solid food for three months. On examination the patient's color was good; abdomen was scaphoid with pigmented areas over the epigastrium from plasters. Though weak, patient felt good except when he had attacks of pain, which were brought on by taking any solid food, and were worse in area of umbilicus. The bowel felt firmer in region of splenic colon, otherwise the abdominal examination was negative. Patient was operated on by Dr. Bloodgood June 29, the peritoneal cavity being opened by a median-line incision from ensiform to below the umbilicus. A carcinomatous growth was found on the lesser curvature of a moderately dilated stomach 3 cm. below the pylorus. Practically all the lesser curvature was removed, together with an adjacent gland showing metastasis. All the fat was removed with lesser curvature, and adhesions binding the stomach to the pancreas were broken up, showing an area of induration in the central portion of the pancreas. The duodenal and stomach ends were reinforced, a loop of the duodenum being anastomosed to the posterior wall of the stomach. The pancreas was left intact, an inflammatory induration of the pancreas in cancer of the stomach not indicating removal as a cancerous involvement would. Patient left the hospital on July 30, and has since gained 32 pounds in weight; he has had no vomiting or pain, and bowels are regular. After a test meal of 100 c. c., 12 c. c. were gotten an hour later. Pathologically, the tumor, which was a large fungus mass on the lesser curvature of the stomach, reaching to within 3 c. c. of pylorus, was an adenocarcinoma.

Congenital Stenosis of the Pylorus—Dr. Charles S. Scudder, Boston.—Until very recently cases of congenital stenosis of the pylorus have been seldom recognized. The disease has been almost universally fatal. The first case reported was by Beardsley of New Haven in 1788. A case was reported in 1841 and a case in 1842. These were the only two reported during the 100 years between Beardsley's report in 1788 and Kirschbaum's in 1888. Since 1888 there have been 35 autopsies, with findings both definite and constant. These findings were an emaciated body—a pyloric tumor, varying in size from an olive to a walnut, of firm consistency, hard, and with no adhesions about it. The tumor was movable, and the surface smooth and uniform. The stomach was hypertrophied, thick, and dilated;

the intestine below collapsed and empty. The pyloric opening is reduced in size, and a section of the tumor shows a thickening of the arc fibers of the pylorus. There have been 63 operations for stenosis of the pylorus in children in which the surgical findings have been the same as the pathological findings above mentioned.

Clinical Symptoms.—The child is born apparently well. After the first 24 or 48 hours it begins to vomit, which is the first sign to attract attention. The vomiting is characteristic, sudden, unexpected, violent, and projectile. The vomitus is contents of the stomach received at previous feedings. It is always free from bile, for no bile can get back through the pylorus. There is no increase in Hcl nor any sign of fermentation. It is the feedings practically unchanged. If the child will be watched when being fed and shortly after, a peristaltic wave will be noticed going over the stomach from left to right. This visible gastric peristalsis is a constant sign, and should be looked for. A pyloric tumor can be felt a little to the right and above the umbilicus in a majority of the cases. A large liver may obscure it or it may be well above the edges of the ribs. The visible peristalsis of the stomach may be simulatd by muscular contractions of the abdominal wall and by peristalsis of the transverse colon. The ejections are small in amount, and not fecal in character, but meconium-like.

The importance of determining the presence of each of the above signs cannot be emphasized too strongly. Differentiation between atresia of the duodenum, which up to now has practically always been fatal, and an almost complete obstruction of the pylorus is very difficult. Infant dyspepsia or indigestion is also very difficult to differentiate, being very likely to be mistaken for partial obstruction. In infant dyspepsia the contents of the stomach are fermented, the tongue is coated, the breath offensive, and there is diarrhea. In partial stenosis the tongue is not coated, the lips are dry, and the breath is sweet.

Prognosis.—Up to the present time medical treatment has been fatal. It has alleviated, but not cured. The variation in diet, lavage, and opium in partial stenosis has relieved the patient. Surgically, pylorectomy was done in one case, but the child died, the operation being a too serious one. Pyloroplasty was done four times. Loreta's operation was done in seven cases, four of which died. Gastroenterostomy was done 21 times successfully and 19 times unsuccessfully. There are two reasons for failure in operation—one when the child has been extremely weak and operation is the last resort; the other, faulty technique. In one case a Murphy button caused an obstruction and the child died. In another the mucous membrane was not excised, and, being bulky, blocked the opening. In three cases the sutures caused kinking. In the Loreta operation the duodenum was ruptured posteriorly, and the child died from peritonitis. In pyloroplasty there was also an obstruction from non-removal of mucous membrane. In a Mikulicz operation of anterior gastroenterostomy the child lived for three months and then died from duodenal ulcers. Two cases were operated upon last summer. The first was on a child of 14 days with classical symptoms. This child had not nursed. When these symptoms are found in a breast-fed child the possibility of stenosis should be carefully considered. In the bottle-fed children they are not so important. In this case the characteristic signs of stenosis were present. The tumor was

found and felt on the fourteenth day. A posterior gastroenterostomy was done. At operation the child weighed 8.2 pounds; now, three months later, the weight is 13 or 14 pounds, the child having gained steadily from tenth day after operation. The second case, which had vomited persistently from second day after birth, underwent a successful operation.

Technique.—All those factors which contribute to shock should be eliminated as nearly as possible. Attempt to avoid loss of body heat; attempt to do the operation in a cleanly fashion; attempt to obtain absolute hemostasis. Rapidity in operation and gentleness in handling the parts operated upon are most important factors. The gentlest touch should be used, for the baby tissues will not stand handling like the tissues of an adult. Trauma and traction of the bowel may have a serious effect on peristalsis, causing tympanites. The tissues being operated upon should be isolated from the operation area, only the parts that are absolutely necessary being brought outside the abdomen.

There are three hypotheses as to the cause of hypertrophy of the muscular fibers. Nichols of Glasgow thinks that the hypertrophy is an overgrowth of the normal muscular tissue. Thompson thinks the hypertrophy is due to an inco-ordination of the nervous mechanism of the stomach, causing the musculature to contract violently and hypertrophy. Founder thinks that a post-natal irritation of the gastric mucous membrane causes hypertrophy. Brüner's glands have been found in the section of pyloric muscle, and this condition being a congenital anomaly, the hypertrophy may be likewise. The after-feeding of these infants should be intrusted to a skilled pediatrist. The two cases reported were fed by Norse and Townsend of Boston. They gave milk from a bottle, starting with a half-ounce and gradually raising by the end of the week to the amount normal for each child. The sections thrown on the screen showed hypertrophied stomachs and pyloric tumors. In all cases there was a narrowing of the lumen. To within a short time the majority of the pediatrists of this country have given but little concern to this condition.

In conclusion, the disease does exist, and it has a definite pathological and clinical picture. Medical treatment has failed to demonsrate that it can cure. Surgery has demonstrated that it can care for something more than half the cases.

The Relation of Dilatation of the Duodenum to Gastric Disturbances—Dr. J. M. T. Finney.—Five or six years ago, upon opening the abdomen for a variety of conditions, particularly conditions of the stomach, duodenum, and gall-bladder, a condition was found which was not mentioned in the literature, *i. e.*, a dilatation of the duodenum, with a patent condition of the pylorus. At that time pyloroplasty was done for want of something better. The patients gave a history of indigestion for months or years, of nausea and vomiting, and symptoms that were indefinite but distressing. Most of the patients had had medical treatment without results. In all the cases there was Glenard's disease. The condition presented by the patients was unsatisfactory for operation. When these cases were first noticed gastroenterostomy was in its infancy. Nothing that was done seemed to benefit the condition. The nearest to a description of the condition was a paper read by A. J. Ochsner in San Francisco this year, in which he reports 14 cases. Mayo, in a recent article on stomach diseases, refers to this condi-

tion. He says it is associated with enteroptosis, but does not say what to do for it. Four years ago, after an operation for gallstones, the patient began to vomit, and vomited until she died. At autopsy there was found a dilated stomach and dilated duodenum, but no lesion could be found. Autopsies on 46 post-operative cases, only one of which was recognized clinically, have been reported from Vienna. The duodenum passes behind the superior mesenteric vessels, the superior mesentery itself running down to the right iliac fossa. When the stomach is much dilated, filled with fluid, and has descended to the pelvis, there is a dragging on the mesentery vessels. This is apparently the obstruction. To the proximal side the intestine is dilated and at the distal side it is collapsed. Rokitansky in the fifties suggested that this condition might happen. Glenard also suggests that dragging on the mesentery might obstruct the duodenum. In four of the 46 Vienna cases the stomach was not markedly dilated, though in most of the cases it had descended. The explanation is not satisfactory for the condition. The dilatation is the effect, not the cause, though it may be both. Two cases have been reported after operation other than abdominal, one being a breast-removal and the other an operation on the elbow. Schnitzler suggests that it takes place after anesthesia, particularly after chloroform.

Prevention, Prognosis, and Treatment.—Only one case was diagnosed before autopsy. The treatment is postural. Put the patient in the knee-chest position for 15 minutes every two hours, or have her lie on the left side with hips elevated. Lavage has been tried with some success. The condition generally occurs in nervous patients who are not well nourished and who have an enteroptosis. The condition is not necessarily a fatal one, though it has not been recognized. A jejunostomy is the operation to get below the obstruction. Diagnosis is made rather upon the continuous vomiting. In some of the cases the obstruction has been near the pylorus, in others below the papilla of Vater, for the patient vomits great amounts of dark bile-stained fluid. This condition, with both the antioperative and post-operative types, is a definite entity. No other observer has noted the circular muscular bands around the duodenum which Ochsner noted, and who draws an analogy between a pylorospasm and a spasm at the ileocecal valve. Gastroenterostomy has been done several times and found wanting. In post-operative cases the postural method or jejunostomy might be tried.

Dr. Hemmeter said that an "hour-glass stomach" had been brought to him which, on examination, showed no scar, and proved to be stomach and duodenum. There are three causes for dilatation in hollow muscular organs—first, abdominal fermentation; second, mechanical causes, such as the ring described by Ochsner and the dragging of the mesentery; third, faults of innervation, Meltzer's reciprocal-innervation theory, *i. e.,* simultaneously as an impulse travels through and contracts the longitudinal fibers the circular fibers relax, *e. g.,* contraction of stomach and loosening of the pylorus. Boas has described infra, papillar and supra-papillar obstructions. In only the cases below the papilla of Vater is there pancreatic juice in the vomitus; hence the trypsin test may be of considerable diagnostic value.

Book Reviews.

Psychiatry. By Stewart Paton, M.D. Philadelphia and London: J. B. Lippincott Company. 1905.

Paton's book on psychiatry is extremely stimulating as well as being a complete exposition of the whole subject of mental alienation. In this book are incorporated all the valuable pathological work along these lines which has occupied Paton's attention during the past few years at the Johns Hopkins Hospital and at the Sheppard-Pratt Asylum. After first discussing the importance, scope and methods of psychiatry and the nature of the disease process in alienation and its relation to pathological changes, Paton takes up in great detail the question of symptoms of impaired mental states, discussing in order defects of judgment and intellect, fixed ideas, disorders of attention, disturbances of sensation and hallucinations, disturbances of consciousness, and in the functions of association, anomalies of memory, disturbances in orientation, in the volitional processes and the emotional reactions, and anomalies of conduct, the last symptom being, of course, much discussed nowadays in relation to the so-called moral insanity. He next discusses the proper mode of examining patients, paying some attention to the examination of the cerebrospinal fluid and its significance. The general treatment of cases of alienation is next considered, while the following chapter is devoted to a careful consideration of the proper equipment and management of hospitals for the insane. A long chapter follows on the general causes of insanity, while before taking up the special groups Paton discusses the proper grouping of mental diseases. Paton's leaning is towards a classification based on a combination of the clinical aspects and the pathological findings of the case. The remaining portion of the book, between 300 and 400 pages, is devoted to a careful consideration of the various groups of mental diseases. While the illustrations are not many, they are most interesting, many of them being reproductions of microphotographs taken by Paton himself. The literature of the subject is very carefully considered, and in every way the book is one which should prove of great value both to the general practitioner and to the alienist. B.

The Ready-Reference Handbook of Diseases of the Skin. By George Thomas Jackson, M.D. New York and Philadelphia: Lea Bros. & Co.

This little book should prove of really great value to the general practitioner as well as being helpful to the dermatological specialist. It is extremely well arranged, well written, and thoroughly up to date. The book is arranged for easy reference, and for that reason the diseases are arranged in alphabetical order. Especial attention is paid to treatment, and all the new methods are incorporated in the work. The illustrations, while not many, are fairly good, and the book in every way is one which should prove of use to the physician. B.

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JOHN S. FULTON, M.D., *Editor.*

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BALTIMORE, FEBRUARY, 1906

LEGISLATIVE RESTRAINT OF THE NOSTRUM EVIL.

THE medical profession of Maryland, it is said, will propose no new legislation this winter. The Faculty will therefore be free to advocate good measures proposed by other people. The general assembly will probably have to consider a measure to regulate the sale of patent and proprietary medicines. There is no doubt whatever about the attitude of the profession on this subject. If a good measure is offered, the medical men will be in favor of it, and their advocacy will help the cause not at all. The opposition will eliminate the medical advocates in the usual way by setting up a straw argument, which the physicians will attack as if it were the core of the proposition, and while they are thus engaged the bill will perish. This ruse has an unbroken record of success in nullifying the influence of medical men, and there is at present no reason to believe that a more ingenious device will ever be needed to fool Maryland doctors. When we first make our appearance at Annapolis in favor of any measure the antimedicals will take notice, but they will not immediately bestir themselves, for they are wise enough to refrain from unnecessary labor of every sort. But let the question be one in which medical opinion counts, and let the real advocates of the measure make their position strong by the weight of medical opinion, as they certainly can in this matter of patent-medicine frauds, and the ancient, reliable, ridiculous illusion will be worked once more. Someone will say: "Of course, the physicians advocate this measure. We would have counted the doctors in favor of the bill if they had stayed at home and said nothing about it, but when they come here in force and ask for the passage of the bill they must want it very badly, and it must be a very much worse measure than we previously supposed."

A little breeze of slapstick oratory like this never fails to put physicians out of action. The sensation of being held up to the scorn of all men as skulking marauders on the people's liberties completely incapacitates a doctor for the time being, and, curiously enough, by the time his brain has recovered function he has usually forgotten how it all happened. This extraordinary sensitiveness is not wholly discreditable to the profession, but it is most inconvenient. Can the medical mind be prepared in advance to withstand this shock? Possibly so. Let us begin by assuring ourselves

that this wind-bogel will be flung at us as soon as our activity begins to be effective; that, except as indicating the strength of our influence, such ribaldry has no significance whatever, nor any purpose except to divert us from the real issue. If medical men could once let this harmless puff of foul air dissipate itself unnoticed, the confusion would be on the other side, for it is not in the records of any legislature that medical men ever failed to be fooled by the argument that to ask a legislature for what one wants, sets up a strong presumption that one's motives are disreputable, and that the legislation asked for would therefore be villainous.

Last winter a bill to regulate the patent-medicine business was introduced in the legislature of Massachusetts. The advocates of the measure argued that its provisions were approved by a great weight of medical opinion, but this argument was disposed of easily and completely. The opposition said: "There is no evidence whatever that this bill is supported by the medical profession. If the physicians really favored the measure, they would do as other citizens do—appear before the committee and urge its passage. No physicians have appeared before the committee, and for us the proof is conclusive that the few lay people, who have appeared, represent the full strength of the proposition, and that the people of Massachusetts, including the physicians, do not want any such legislation."

HERE DISCRETION IS THE BETTER PART OF VALOR.

In his address, printed in this number of the Maryland Medical Journal, Mr. Adams pointed out what he thinks is "a vital weakness of the medical opposition to patent medicines."

"You have not," said he, "as a profession, an *intelligent* idea of the forces which you are fighting. Since entering upon this field of work I have received from *physicians* enough *misinformation* to have kept me in jail for the rest of my natural life on libel charges had I accepted one-tenth of it."

In another part of the present issue one may find a report of a recent meeting of the Allegany County Medical Society. The society, it is said, passed resolutions condemning the use by its members of any proprietary remedy whose maker belongs to the American Proprietary Association, calling on the Maryland Medical Journal to reprint from the *Journal of the American Medical Association* the membership list of the American Proprietary Association, asking the Maryland Medical Journal to refuse hereafter any and every advertisement offered by any member of the Proprietary Association, and saying that 15 such advertisements are now running in the Maryland Medical Journal.

This action of the Allegany County Medical Society is perfectly consistent. Having determined that certain reforms are necessary, the society knew where to begin, and did begin with its own membership. In the virtue of consistency these resolutions are distinguished above any previous action of the organized profession in Maryland on this subject, and we lose no time in making respectful answer to the Allegany County Medical Society.

We cannot print the membership list of the American Proprietary Association. In reprinting the list which is said to have appeared in the *Journal of the American Medical Association* we should be responsible for any errors present in that list and for any additional errors that may have occurred through changes of membership since the date of former publication. The fact that Mr. Edward Bok is now defending a suit for libel in having reprinted a published statement which was true at the time of its original publication, and the strong probability that the business of certain manufacturing chemists might be injured by false statements concerning their membership in the American Proprietary Association, sufficiently indicate a substantial liability for us if we should comply with this request of the Allegany County Medical Society.

While we are free to decline any advertisement offered, we cannot discriminate against the American Proprietary Association. The consequences might be painful, to say the least, and we doubt if anyone would willingly incur the liability to criminal indictment which, under a just and necessary federal statute, would be ours if we should assent, expressly or by palpable implication, to this proposition of the Allegany County Medical Society.

FIAT JUSTITIA, RUAT CAELUM.

The tide of reform which is now in motion has already accomplished some good, and perhaps it is too much to expect that so great a movement will keep bounds of moderation. The Maryland Medical Journal, having as much at risk in passing events as any other medical concern, has so far sustained no material injury in excess of the legitimate damage of honorable conflict. We have been hit, however, and will perhaps be hit again by unintentional and unnecessary shots from greenhorns on our own side. A few such accidents must be expected in our exposed situation, and we shall, if possible, take what comes from front or rear without losing sight of the main issue. But let us understand in advance that the editorial temper is not quite imperturable.

The medical profession of Maryland has not been, and will not be, we hope, misled very far into the extravagances which characterize this movement in some parts of the country. However praiseworthy its original impulses may have been—and they were praiseworthy—the reform forces are now acquiring the characteristics of a mob. Much that was of great value to the medical profession has already been sacrificed to the recklessness of a few fanatics. Seeing evil days ahead, and fearless of them, the Maryland Medical Journal knows its duty and will do it. This Journal speaks but once a month. If the mob spirit should break out in Maryland, it may be too late to say a word which at all hazards must be said for the Journal's advertisers. Man for man, our advertisers are entitled to as much respect as our contributors or our subscribers. Every particular comprised in this general statement is open to investigation. But the sweeping assertion that the manufacturing chemists who advertise in the Maryland Medical Journal are unworthy of public or professional confidence, if such a statement be made, will be met with the rude, brief answer which terminates amicable relations.

Correspondence.

THE SILVER LINING OF THE CLOUD.

Editor Maryland Medical Journal:

The disclosures in the course of the recent "housecleaning" of the giant life-insurance companies in New York by the legislative committee of inquest have left a painful record of mismanagement, of breach of trust, and of ruined reputations. Executive officers of great prominence, and heretofore of unquestioned integrity, have been the chief offenders, and they have paid the penalty of wrongdoing by the loss of position and by arousing widespread indignation. The abuses of administration, as revealed by the inquisition and published at length in the newspaper press at home and abroad, are shown in surrender to the temptations which beset unrestrained exercise of one-man power, in extravagant methods of expenditure, in excessive salaries and allowances, in unreasonable commissions to agents, in speculative transactions by which trustees and counsel, as well as executives, profited; in racing after enormous volumes of new business, at any cost, to distance rivals; in deferring dividends and heaping up surplus accumulations in order to become great money powers in the financial field, and in the appropriation of large and unaudited sums for political campaigns, and for lobbyists to influence legislation. Public exposure of such perversion of trust funds is already paving the way for corrective and reformatory measures that will conserve the interests of those for whose benefit and protection the insurance system is primarily organized—the policy-holders.

In this lengthened and comprehensive overhauling it is pleasant for our professional brethren to note that one branch of administration—the medical department—has been proof against unfavorable criticism. There was no thought of irregularity in that quarter. In the multitudinous letters with which the legislative committee was flooded there was no charge of deviation from the high standard of medical duty and obligation. During a period of more than 35 years of active service as an examiner for many of our leading American life companies the writer was brought into intimate relations with their medical officers, and he is therefore abundantly qualified to testify to the efficiency, the impartiality, the faithfulness, that govern their selection of risks. Of course, now and then we find a hobby-rider or a martinet who is "virtuous overmuch." There is such a thing as undue timidity in dealing with gradual approaches to the borderland of the under-average class; there was formerly too little attention to the insurance elements, the medical estimate alone being the decisive factor. But with regard to the latter it should be noted that of late years the increase of attempted fraud upon the companies has emphasized the importance of the insurance viewpoint, particularly in relation to the moral hazard, to acquired habits, to insurable interest and its bearing upon assignments, or to disproportionate pecuniary standing. If there is any error of judgment it is on the side of the safeguards; the company gets the benefit of the doubt. When a decision leaves room for questioning there is always readiness for reconsideration if substantial reasons are presented for review. The agent knows that the arbiter is disinterested, and that unfairness or injustice in his treatment is out of the question.

In considering the medical appraisement of risks and its bearing on the mortality ratio from the earlier simplicity and conciseness of the examiner's blanks to the gradual lengthening of analytical inquiry, the expansion of the grounds of disqualification, and the inflexible exclusion of all but gilt-edged acceptability, there has been a wide range of discussion. But whatever the difference of opinion in the history of this discussion as to the gradation of viability and the maintenance of the mortality ratio of actual experience below the calculated or tabular prediction, there has never been a shadow of doubt as to the good faith, the loyalty, the right-minded and even-handed justice, the "patient continuance in well-doing" of the medical authorities of our life companies. They have been "faithful among the faithless," and their fidelity is all the more pronounced and conspicuous in view of the maladministration which has been brought to light by a sweeping and exhaustive investigation.

Charles C. Bombaugh, M.D.

Baltimore, January 9, 1906.

THE CHURCH HOME AND INFIRMARY.

The Church Home and Infirmary on North Broadway is one of Baltimore's old landmarks and has for many years been the haven of the aged and infirm.

During the last decade the trustees felt that the usefulness of the institution could be greatly increased by developing its hospital or infirmary feature. A few years ago the east wing was torn out, only the shell remaining. The interior was divided up into wards for free pa-

tients and into private rooms for private patients and for endowed beds. A little later the operating-room was remodeled and enlarged, and became one of the most complete in the city.

The capacity of the hospital was soon taxed to the utmost. The trustees, however, wisely refrained from adding to their building until they could do so without in any way curtailing the usefulness of the home feature—the care of the aged. Just before the fire they were able to add the new wing. This new building, erected at a cost of $50,000, contains a large number of private rooms and suites, many of which have private baths. These rooms are not surpassed by any in the city. One entire floor is set apart for the nurses' home. The building has also a set of rooms planned for a small dispensary.

A pleasant feature of this new wing is a large sun parlor where convalescent patients can be wheeled out in chairs or beds.

The Church Home has an ideal location on one of the highest points in Baltimore. The upper windows and balconies afford a beautiful view of the harbor and its shipping. To the south and west the picture is a panoramic view of the business portion of the city.

This institution was founded and is supported by the Episcopal Church, but all denominations are represented among its patients.

Dr. Frank Denton Gavin, the superintendent, is ably supported by an active board of trustees. Dr. R. Abercrombie and Dr. MacGregor are the house physicians.

The hospital has an expert anesthetist—Dr. G. Griffith Davis, who has administered the anesthetic at nearly every operation for the last eight or nine years.

Miss N. Ellicott of the Johns Hopkins Hospital is superintendent of nurses. Miss M. Thompson is assistant superintendent and Miss N. Smith is night superintendent. The training school for nurses is in excellent running order and offers a splendid field for those who desire to devote their lives to nursing.

The cuisine is under the care of Mrs. W. W. White.

To Dr. Gavin, who has done so much for the upbuilding of the institution, and also to Miss Sudler, who has contributed largely to the making of the "homelike" atmosphere, the improvements must be especially gratifying.

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BONE AND JOINT LESIONS DUE TO THE PNEUMOCOCCUS.

By Alexius McGlannan, M.D.

READ BEFORE THE SECTION ON CLINICAL MEDICINE AND SURGERY, BALTIMORE CITY MEDICAL SOCIETY, NOVEMBER 17, 1905.

The relation of bone and joint diseases to other inflammations necessarily could not be clearly demonstrated until the advance of bacteriology allowed the isolation of the organisms causing the inflammations. For this reason authentic knowledge of pneumococcus bone and joint lesions began in 1888 when Wiechselbaum[1] published his article on pneumococcus infection, where a case of arthritis is reported, in which examination of the pus proved the presence of the pneumococcus. Previous to this time the relation of metastatic inflammation to the lung lesion in pneumonia was often suspected, but, of course, could not be demonstrated. As early as 1864 Grisolle[2] reported four cases of arthritis occurring in the course of or soon after lobar pneumonia. He studied this arthritis with regard to its relation to rheumatism, and decided that the conditions were distinct diseases. Many subsequent references to pneumococcus inflammation of bones and joints are found in the literature, by far the greater number in French and German reports. In American literature the subject is covered in Herrick's paper on pneumococcus arthritis[2] and by Bloodgood[3] in his articles on bone and joint lesions. Meyer of Strassburg[4] reviews the literature and reports several cases of bone and joint infections in a valuable paper on the suppurative action of the pneumococcus.

Pneumococcus Osteomyelitis.—The first case of osteomyelitis in which the pneumococcus was proven to be the cause is that of Ullman[5] in 1891. The patient, a man of 34, after a lobar pneumonia had an extracapsular abscess over the upper end of the humerus, the pus of which contained the pneumococcus. Later a sequestrum was removed. Hausen[4] in 1877 reported a case of

osteomyelitis of the humerus with suppurative arthritis of the shoulder following lobar pneumonia in a man 53 years of age.

These cases are of especial interest because of the age of the patients, being the only recorded cases of pneumococcus osteomyelitis in adults.

In all 14 cases have been reported. An early one is that of Netter,[6] in which a pneumococcus abscess developed in the ileum during the healing of a fracture, the patient in the meantime having had a lobar pneumonia. Other cases are reported by several observers, the best studies being those of Perutz[7] and Lexer.[8]

The lesion occurs most often in young children. Of the 14 reported cases 12 were in children—six less than one year, five under three, and one at 12 years. Two were in adults.

In eight cases there was a previous history of pneumonia or the bone disease complicated an attack of lung inflammation. Two cases followed otitis media. In four cases no previous history of infection was given.

The clinical symptoms are those of any osteomyelitis. Perutz[7] points out the occurrence of widespread edema of the soft parts above and below the seat of the bone lesion as a sign suggestive of pneumococcus infection. In children a complicating arthritis occurs very early and may mask the symptoms of the bone lesion.

The pathology of pneumococcus osteomyelitis resembles that of streptococcus more than that of staphylococcus infection. The bone changes are relative slight. The focus of suppuration is small and single, situated in or near the epiphyseal line or in the cortical bone. There are no large medullary abscesses. Perforation and involvement of the joint, with the formation of subperitoneal and extracapsular abscesses, occurs early. Epiphyseal separation is common, and there is a tendency to gangrene.

The treatment consists in opening and draining the bone abscess as early as possible. The cavity should not be curetted.

Pneumococcus Periostitis.—This condition is most common in the jaw. The alveolar process and the teeth are frequently infected. This is not surprising when the almost constant presence of the pneumococcus in the mouth is considered.

Bonardi[9] in 1899 described an epidemic of pneumococcus abscesses of the gums. E. Scheier,[10] in 20 cases of dental periostitis and pulpitis, found the pneumococcus in pure culture eight times and mixed with staphylococcus pyogenes albus seven times. Meyer[4] reports in detail four cases of jaw infections, and notes that he has observed many cases of alveolar abscess in which the pneumococcus was found in the pus, but of which no clinical history has been preserved.

These cases all occurred after the eruption of the second teeth. In all, decayed teeth were present and there was a history of previous abscesses and of frequent swollen face. In one case there was a history of an attack of lobar pneumonia 14 years before and of swelling of the jaw whenever the patient took cold. All four cases reported by Meyer were of the lower jaw, the abscesses be-

came very large, the swelling was doughy to the touch, and in one case the center of the swelling fluctuated. The submaxillary glands were enlarged and the periostium of the jaw thickened. In three of the cases the pus contained pneumococcus in pure culture; in one it was mixed with colon.

The treatment consisted in opening and draining the abscess and removing the carious teeth.

Pneumococcus periostitis of the long pipe bones as a distinct lesion is not mentioned in the literature, being always included in reports of bone and joint lesions, in both of which involvement of the periostium is comparatively frequent.

Pneumococcus Arthritis.—The number of reported cases of joint inflammation due to the pneumococcus is much greater than that of bone lesions. Herrick's report in 1902 included 52 cases from the literature and his own observations. Since that time several cases have been reported.

Number.	Observer.	Date, Sex, Age.	Relation to Pneumonia.	Seat.	Nature.	Complications, &c.	Result.
73	Osler.....	1898 Male (Adult)	Meningitis, Double Pneumonia	Knee	Purulent.....	Meningitis, Septicemia, Incision	D
74	McDonald[16].....	1898 Male, 15	None	Hip.	Purulent.....	Followed injury, Incision, General Sepsis	D
75	Meyer, E.....	1900 Female 16 mos.	No History	R. Shoulder....	Purulent.....	None. Aspiration.....	R
76	Meyer.....	1901 Male 21 mos.	Varicella.....	L. Ankle.....	Purulent.....	Sinus over malleolus, Bone Eroded, Incision	R
77	Meyer	1901 Female 36 yrs.	Beginning on R. Side	L. Shoulder and Hip	Purulent.....	None. Incision.....	R
78	Witt[11]	1905 Male 36 yrs.	15th day of Pneumonia	Knee and Arm	Purulent.....	Aspiration.	D
79	Cabannes[15]	1904 Male 22 days	None.....	L. Ankle, Knee and Shoulder.	Purulent.....	Portal of Infection, Suppuration at Umbilicus. Incision	R
80	Krokiewicz	1904 Male 28 yrs,	6th day of Pneumonia	Shoulder	Purulent.....	Incision. Drainage.	D
81	Latimer.....	1905 Male 36 yrs.	7th day of Septicemia	R. Ankle.....	Purulent.....	Incision. Irrigration....	R

Osler[13] in 1898 reported a case of arthritis occurring in the course of a meningitis with pneumonia. The pus from the knee-joint contained the pneumococcus. Meyer[4] reports three cases—two in young children. Uncomplicated arthritis is rare in young children. Of 81 cases now recorded only 15 were in children under 18 years, and one of these reported by Meyer resulted in the formation of a sinus with bone erosion, and suggests the possibility of an osteomyelitis as the underlying cause.

Metastatic pyogenic arthritis is very rare in children. Almost always the arthritis results from the extension of inflammation into the joint from an adjacent metastatic bone lesion.

Slaughter[11] has reported a case and brought the literature up to 1903. Howard[17] adds three cases and Krokiewicz[12] adds one case

to the literature, but his review of the previously reported cases is very imperfect. Following Slaughter's example, I append a table showing the recently-reported cases, arranged as in the table of Herrick's article. A hitherto unreported case is the following one from Dr. Latimer's wards in the Baltimore City Hospital:

The patient, a man of 35, entered the hospital with fever and other symptoms of severe toxemia. The blood gave pure culture of the pneumococcus. He was carefully observed, but definite signs of pneumonia could not be made out until the third day, and then the physical signs indicated a degree of lung involvement very slight in comparison with the severity of the toxemia. On the seventh day he began to have pain in the right ankle, which later became swollen. The joint was opened, evacuating a small quantity of thick yellow pus which contained the pneumococcus in pure culture. The joint was irrigated and the patient made a perfect recovery with a freely movable joint.

Although more common than bone lesions, joint effusion is rare in pneumonia. Herrick states that it occurs about once in 800 cases. The condition is almost always secondary to croupous pneumonia, although there are many cases in which the joint inflammation seems to be part of a general pneumococcus septicemia or a primary lesion.

The disease is most often monoarticular. No joint seems particularly susceptible. Probably the localization is determined by some previous injury or inflammation or by occupation.

The changes are the general changes of acute synovitis. There is first injection of the synovial membrane, later the cellular changes of inflammation occur in the synovial and periarticular tissues, followed by destruction of cartilage, and later by periostitis and separation of the epiphysis. The arthritis due to osteomyelitis is very likely to advance rapidly to the stage of periosteal abscess and sequestration of the epiphysis.

The inflammation may subside at any point of its process, but after the cellular changes are advanced recovery is accompanied by scar formation, and this scar tissue will cause permanent restriction of the motion of the joint.

The arthritis commonly comes on during convalescence or some days after the onset of the lung disease, but it is possible that, intent on the lung condition, the physician often overlooks the arthritis, which does not attract the attention of the very ill patient. Whenever in the course of pneumonia or during convalescence a joint becomes painful it should be regarded with suspicion, and on the appearance of effusion should be aspirated. The aspirated fluid should be examined bacteriologically by cover-slip culture and inoculation, and according to its character the treatment determined. A sterile fluid is common when the effusion is due to adjacent osteomyelitis. When the local symptoms are mild and the fluid thin it is justifiable to wait 24 hours and observe the effect of aspiration. Occasionally the symptoms subside. As a rule, pneumococcus infections are not cured by simple aspiration, and the

effusion rapidly forms again. The treatment now is arthrotomy and irrigation.

Under cocaine anesthesia the joint is opened by a free incision and washed out with 1 to 1000 bichloride solution, followed by salt solution. If possible, the joint is kept in a bath for two or three days, and then the wound is allowed to heal. When the bath is not feasible the wound is dressed and loosely bandaged, and the washing repeated daily until the local signs subside, which usually takes place in two or three days. After the third day passive movement is begun. Drainage is not required in the cases treated early, but if it is thought best to drain, protective or catgut drains should be used. Gauze or tubes must never be used if an attempt is being made to restore the synovial membrane to a normal condition.

The neglected cases, where the process has gone on to rupture, of the capsule and periarticular inflammation, are treated by free incision and drainage. Here the joint is already destroyed and the use of tubes or gauze drains is proper.

The possibility of an osteomyelitis as the cause of an arthritis is to be remembered, especially in young children. Whenever arthrotomy and irrigation do not promptly relieve the joint symptoms a wider opening should be made and the adjacent periostium and bone explored for an infected area. The younger the child the more difficult it is to distinguish between bone and joint inflammation by clinical signs.

The prognosis of joint lesions is good for a useful joint if the treatment is begun early. The general mortality in pneumococcus arthritis is high, because the joints are most often involved as part of a general septicemia, the prognosis of which is always grave. Pneumococcus osteomyelitis appears to offer the best prognosis of all forms of osteomyelitis. Lexer[8] places the pneumococcus below both the streptococcus and the staphylococcus osteomyelitis in point of local virulence.

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PHYSIOLOGY, SO-CALLED, AND THE CIGARETTE.

By Leonard K. Hirshberg, A.B., M.D. (Johns Hopkins).

Were it not a painful duty, it would be almost a work of supererogation to again call attention to the exaggerated errors perpetuated in the American public-school textbooks of physiology and hygiene.

Perhaps it is not amiss, before proceeding farther, to say that I have never smoked or tasted liquor in my life; therefore the following remarks cannot be attributed to prejudiced judgment.

Most of these wild exaggerations are endorsed, to put the matter mildly, by the W. C. T. U. or its branches in the different States. These well-intentioned but ill-informed enthusiasts insist upon the incorporation of terrifying descriptions of the evils of tobacco and alcohol in public-school textbooks which are to teach the sciences of physiology and hygiene.

In order to be specific and therefore emphatic the textbook quoted in this paper will be a standard one used in the grammar schools of Baltimore, one of the great university cities of America and the leading center for advanced medical research.

Tobacco was in use by American Indians long before any European ever touched these shores. Its use as an article of luxury spread from the court of Elizabeth to the Continent, and, despite strong opposition by the clergy and fanatics of the seventeenth century, has dominated and soothed the human race ever since. The aboriginal tribes inaugurated smoking cigars and pipes, the English introduced the habit to civilization, the French originated snuff-taking, the Spanish made the first cigarette, and it is said the American people began the dirty habit of chewing tobacco. Whether by smoking, snuffing or chewing, the volatile nicotine is absorbed into the system. The quantity of nicotine taken in smoking is dependent upon the kind of tobacco and the manner of inhalation. Snuff contains a very small amount of nicotine, and there is but little nicotine in chewing tobacco, which always contains molasses or a syrupy substance.

The tobacco habit is by no means comparable to the alcohol, morphine or cocaine habits for a number of reasons, the most important of which is that it is never taken with the purpose of stimulating or depressing the nervous system.

Professors Cushing of Oxford, Smiedeberg of Strassburg, Meyer of Vienna, Sollman of the University of Michigan, and Abel of the Johns Hopkins, eminent pharmacologists, are all unanimous and

emphatic that "the nicotine absorbed doubtless has no action whatever." This has been proved in ways too numerous to mention. The pleasurable results and the habit acquired is not dependent on nicotine, for its pharmalogical actions are against this, and it has been proved by substitution. Many smokers know this, for the pleasure of a cigar is more than half destroyed if they sit in a dark room and don't see the smoke.

The odor, strength, and flavor of tobacco depends upon a fixed volatile oil present in the dried leaves, and has nothing to do with nicotine. Pure nicotine has no flavor or odor.

The majority of smokers may use tobacco moderately (about six pipes equals three cigars, which equals 10 to 15 cigarettes daily) for many years and suffer no ill-effects. The true dangers of overindulgence include chronic throat conditions, pharyngitis, laryngitis, and bronchitis, due to the irritant alkaline vapor. Cancer of the tongue and lip may be blamed upon the irritation. Irregularity of the pulse may rarely be attributed to tobacco.

"*Tobacco,* a powerful narcotic, contains a substance called nicotine. A *single drop, if put on the tongue* of a dog, will soon kill the animal. An ordinary cigar contains nicotine enough to kill two men if taken pure."

Here are three little sentences containing four big lies. Tobacco is not a narcotic, a single drop of it (tobacco or nicotine?) will not kill a dog in the manner described, and an ordinary cigar used in the ordinary way, containing its usual amount of pure nicotine, will not kill two flies.

In the same chapter there occurs this section on cigarettes: "* * * they are one of the worst possible preparations of tobacco. The smoke of the paper wrappings is irritating to the lungs, and the cigarettes send more poisonous fumes into the delicate air-cells than a pipe or a cigar would do." The smoke of the paper wrappings of cigarettes have never been proved irritating to the lung-cells even when inhaled, so this statement remains *subjudice.* They do not send more poisonous fumes into the lung-cells, and are only one-fifth as strong as a pipe and one-tenth as strong as the average cigar.

The next sentence contains more false statements than the preceding. It reads: "Drinking men are almost always smokers or chewers, and many a drunkard owes his ruined life and happiness to the appetite for narcotics formed by the use of tobacco and the company into which it led him." Comment here would be superfluous.

How can the observant children who study this so-called physiology accommodate the following statements with their personal knowledge of brothers, fathers, uncles, and most men they meet using tobacco? "A boy who uses tobacco runs the risk of being dwarfed in body, mind, and soul." How is it possible to teach the

truth about tobacco or anything else by means of such reckless misstatements? The remaining portions of this interesting chapter would shame a New York yellow journal. Playing upon the emotions of boys and girls with threats of insanity, disease, and death is inexcusable, to say the least. The lesson thus expected to be taught is, fortunately, lost by the force of a multitude of contrary facts at the disposal and in the experience of every child.

With respect to the cigarette and its paper wrapper, analyses made in London, Boston, Washington, and New York show the absence of any trace of poison of any kind. Rice paper and cornhusk paper were the only kinds found.

The Medico-Legal Society of New York City recently sent inquiries to all the superintendents of insane hospitals in this and foreign countries as to a possible relation between cigarette-smoking and insanity. Replies were received from several hundred authorities, who were unanimous in saying that not a single case of mental deterioration had ever been traced to tobacco in any form. The American, German, English, and French literature may be searched in vain for such reports, though the temperance societies and anticigarette leagues have great amounts of so-called evidence to that effect.

Although chemists throughout the world and government experts in particular are constantly upon the lookout and are analyzing cigarettes daily, no narcotic such as morphine, belladonna, hyoscine (scopalanine) or similar drug has ever been found in them. It would be just as easy to find whiskey in milk when it is taken from the dairy.

In the records of some 2000 carefully-recorded autopsies at the Baltimore City and Johns Hopkins hospitals there is absolutely no mention of any death due to cigarettes, and absolutely no note of organic changes which could be honestly attributed to cigarettes. I doubt whether the word "tobacco" occurs in these autopsy reports. Where, then, are all those "cigarette brains" and "heart failures" or "tobacco hearts?" Their basis of fact is found in such conditions as toxic amblyopia and in the idiosyncrasy of certain exceptional individuals, less exceptional perhaps than the sensitive people who are nauseated by milk.

Diseases of Women. By Barton Hirst. New York and Philadelphia: W. B. Saunders & Co.

This is a very practical and thorough treatise on the diseases of women, and the great experience of the author, both in gynecology and in obstetrics, has been utilized to the full in the preparation of this volume. The book can be heartily recommended, and should be a real addition to the library of every specialist in this field, as well as furnishing many valuable suggestions to the general practitioner, who must of necessity meet with a considerable number of gynecological cases in his practice. B.

Current Literature.

REVIEW IN NEUROLOGY.

Under the Supervision of Robert Reuling, M.D., Baltimore.

Pseudosclerosis (Diffuse Sclerosis), With the Report of a Case With Necropsy. Charles Potts, M.D. With Pathologic Report and Remarks. William G. Spiller, M.D., Philadelphia. *The Journal of the American Medical Association,* Vol. XLV, No. 20.

In 1883 Westphal reported two cases presenting a symptom-complex resembling that of multiple sclerosis, but in which microscopic examination of the brain and cord gave negative results. To this condition was given the name pseudosclerosis. Since this time a number of cases presenting this condition have been reported, mostly by German observers. It will be noted in reading the abstracts of these cases, which are given below, that the brain and cord in a number of them were unusually firm. A similar condition of hardness, although possibly more marked, is observed in another group of cases also presenting a symptom-complex resembling that of multiple sclerosis, in which microscopic examination of the brain and cord shows a proliferation of neuroglia and vascular disease. To this condition the term diffuse sclerosis has been applied, and a number of cases have been reported, mostly by German authors. Spiller rather tends to the view that the same pathologic condition is present in both pseudosclerosis and diffuse sclerosis, the former being a milder degree of the latter. It is the special object of the authors' paper to call attention to this relationship. The pathologic condition now known as diffuse noted in the past, especially in the brain of idiots, and cases occurring in adults were reported years ago, although not under this title, but it is only recently that attempts have been made to erect on this basis a distinct disease.

Probably the first case was reported in 1849 by Duplay to the Biologic Society of Paris. The patient had suffered for a number of years with paralysis brought on by overexertion and sexual excess. After awhile the bladder and rectum and tongue became paralyzed, the mental condition being reported as good. At the autopsy the internal membranes were found to be opaque, but not adherent to the cortex. The gray matter was normal, but two-thirds of the white matter was sclerosed, more so toward the ventricles. This condensation was equal in extent on both sides. The optic chiasm and the striate bodies were of greater consistency than normal. The cord was small and atrophic.

In 1854, under the title of "A Case of Cerebral Sclerosis," M. Hirsch reported a case of chronic induration of the brain tissue.

His patient was a man, 53 years of age, who had been suffering for several years. At the autopsy the principal conditions found were an injection and infiltration of the pia-arachoid, which was easily separated from the cortex, and a toughness and dirty-white color of the brain substance. There was very little cortex, the tough, dirty-white material taking its place. In some places the brain seemed cartilaginous. The ventricular lumen was small, and the striate bodies and optic thalami were atrophic and tough. In the left frontal lobe several spots of sclerosis differing from the rest of the substance in luster were seen. The pus, medulla, and peduncles were also indurated. The basilar arteries were sclerotic. The condition of the spinal cord was similar to that of the brain. The clinical symptoms were disturbances of sensation, headaches, dizziness, disturbances of motion, as convulsive movements and contractures; paralysis of one hypoglossal nerve and of the bladder and anal sphincters, and ceaseless laughter and crying.

The authors' case presented the following clinical manifestations:

The patient was a negro man, 57 years of age, and a laborer by occupation. His chief complaint was "tremor and weakness of the extremities."

History.—There was nothing to note in the family history; syphilis denied. Until four years previous to onset of present illness he indulged in alcoholic excess. The first symptom noted was a progressive loss of strength, staggering, and a tendency to trip over small objects. He had suffered from dyspnea on exertion for the past 20 years.

Examination.—The heart, lungs, and other viscera were apparently normal. Urine was normal. There was ataxia of both arms; also a coarse tremor, which was intensified by voluntary movements, such as lifting a glass. The gait was slightly staggering and spastic. The knee-jerks increased. Ankle clonus was absent, but the Babinski reflex was present on the right side. The pupils were equal, did not react to light, but to accommodation. There was no involvement of other cranial nerves nor of the bladder or rectum. Sensation was normal. A diagnosis of multiple sclerosis was made.

On March 1 the following note was made: There is no scanning speech. Tremor of the tongue is not present, but there is marked tremor of upper facial muscles when patient attempts to protrude the tongue. There is a coarse voluntary tremor of the arms and legs. No nystagmus. Knee-jerks exaggerated and ankle clonus on the right side.

July 5 it was noted that for several days previously the patient had been noisy and had refused to eat, asserting that the food had been poisoned. By July 19 these symptoms disappeared. It was only for these few days that any mental symptom developed. July 28 he was suddenly taken with a convulsion which lasted an hour. He then became comatose, and remained so until he died on July 29.

Necropsy.—The pathologic diagnosis was hardening of the brain

and spinal cord, chronic diffuse nephritis, gummata of liver, acute serous pericarditis, acute fibrinous pleurisy.

The brain was extremely hard in all parts, and the blood-vessels throughout were very prominent. On section the brain was markedly firm in both the gray and white matter. There was no evidence of a gross pathological lesion. The white substance was more firm than the gray. The injection of the capillary vessels was extremely marked. The basilar artery was rigid. The entire brain, when removed from the cadaver, felt as though it had been partially hardened by some fluid. The microscopic examination showed the cerebral pia was slightly thickened, and showed an unimportant round-cell infiltration. In some parts of the paracentral lobule hemorrhages within the perivascular spaces were found.

The medulla oblongata appeared normal both by the Weigert and acid-fuchsin stains.

The neuroglia of the white matter of the spinal cord was slightly increased in amount, and occasionally a somewhat swollen axis cylinder was found. The nerve cells of the anterior horns stained by thionin appeared to be normal in the cervical and lumbar regions. No alteration could be detected in the spinal cord by the Weigert hematoxylin method, and there was no round-cell infiltration within the spinal cord or spinal pia. The Mardi sections of the cord showed a very few black dots in the crossed pyramidal tracts—so few that they are of questionable importance, and were not unlike what Strumpell found in one case.

* * *

A Preliminary Report Upon the Spirocheta of Syphilis. Antonio Fanoni. *Medical News,* Vol. LXXXVII, No. 15.

The author is to be congratulated on the three excellent microphotographs which accompany his article. The organism is the one described by Schandrin and Hoffmann, and named by them the spirocheta. After many unsuccessful attempts with different stains he at last obtained satisfactory results with Giemsa's stain, which was prepared by Eisner & Amend, New York. The material for study was obtained from 12 cases of primary and secondary syphilis, and included material taken from chancres, inguinal glands, condylomata, papules, and mucous patches. Scrapings were made from the chancres with a sterile scalpel. Smears were made in the usual way. The following is Giemsa's staining method:

Fix in absolute alcohol for half an hour; then immerse for 24 hours in the following solution:

(1) Twelve parts of a solution of eosin (2.5 c. c. of 1 per cent. eosin solution in 500 c. c. water). (2) Three parts of azur I (one part dissolved in 1000 parts of water). (3) Three parts of azur II (solution of 0.8 parts per 1000 of water). Wash in water.

For clinical purposes he prefers the method of Oppenheim and Sachs, which consists of the following technique: The slides, being first dried in the air, are placed in the following solution without

fixation: 100 c. c. of 5 per cent. carbolic-acid solution in water, 10 c. c. of a concentrated alcoholic solution gentian violet. The slide is dried slowly by very gently heating it over the Bunsen flame until it begins to steam. Wash in water and dry with filter paper. The spirocheta will appear stained very distinctly blue and larger than those stained by Giemsa's stain, I think, because the alcohol in the latter dehydrates and shrinks the germ. This process has the advantage of staining in a few minutes.

The reader is referred to the original article, which practically consists of the staining methods described by the three micro-photographs.

* * *

Contributions to the Pathology of Chorea and the Acute Infectious Processes in the Central Nervous System. Cramer and Többen. *Monatschrift für Psychiatrie und Neurologie,* Vol. XVIII, No. 6.

The authors' article is based on the finding of bacteria in the blood of two chorea patients during life. A brief review of the clinical history of these cases follow:

The patient, H. K., aged 17. Her mother is of a very nervous temperament, being easily excited on the slightest provocation. Her father and remainder of family are healthy. Had chicken-pox as a child. Admitted to the hospital in August, 1904. Just before Christmas in 1904 the patient had an attack of mild facial erysipelas, having had a similar attack a few years previous. There was no evidence of rheumatism or throat trouble. Just after Christmas she noticed some slight disturbance in her speech, soon followed by muscular twitching in the left half of the body. These soon involved the right side. Improvement followed in four weeks. After Easter a relapse set in which lasted throughout Lent. Fourteen days before admission to the hospital a fresh attack set in.

Present Condition.—Well nourished, tall girl, good general appearance, with rosy cheeks. Constant twitching apparent in the muscles of head, more especially about the mouth, constantly making peculiar noises with the tongue and lips. Both arms are in frequent twitching motions, often describing a wide circular curve beside the body. This is especially true of the left arm. These motions are very irregular. She either touches the lips with her fingers or clutches convulsively at her handkerchief and crumples this on obtaining same. Kicks with both feet and raises and adducts thighs, these movements being most marked in the left extremity. Facial muscles otherwise show normal innervation. Pupils equal and react to light and accommodation. The tongue is constantly rolled about the mouth. The speech is thick and hesitating. Pulse 120 to 132, but of good volume and strong. The heart's action is rapid, but evidence of enlargement, and sounds are clear. Biceps and triceps reflexes very active, but no myoidema. No dermographia. Patellar reflex exaggerated and at times a tonic muscular contraction occurs in quadriceps on striking the tendon. Lungs normal. After being in the hospital three days

the patient is more contented, and the muscular unrest has diminished considerably, but still marked enough to make bathing patient a difficult undertaking. The speech can be slightly understood. After 10 days of rest in bed the muscular twitchings have almost ceased. On the twenty-second day of stay in hospital she is suddenly taken ill, feels feverish, malaise, and complains of increasing muscular twitching and general restlessness. Examination in general negative except slight rise of temperature.

On following day she complains of a sore throat. Examination shows both tonsils are swollen and red, also the fauces. On the third day a small yellowish-white membrane is visible on the right tonsil; temperature 37.5°. On the fourth day a small deposit of membrane on the left tonsil and pillars of fauces. After a slight relapse of the throat symptoms, which, by the way, were always accompanied by a marked increase in the muscular twitching and restlessness, the patient made a satisfactory recovery excepting for a slight systolic murmur over the body of the heart. After three months in the hospital she was discharged. From the blood in this case the authors obtained a pure growth of staphylococci, but they claim no importance to this find, but only wish to call attention in this first case to increase of symptoms, etc., during the febrile period, and the entire clinical picture pointing to some infectious process as a cause of the chorea.

The second case follows, which is of more interest, as a post-mortem examination was obtained, and the findings of apparently more direct relation to the disease:

Maria K., aged 13. The patient is the youngest in a family of nine children. Her parents are healthy, except that her father has suffered from rheumatism. No history of any nervous disease in the family. She has never had rheumatism, and was always healthy.

Fourteen days before admission to the hospital she began to have twitchings in the muscles of the right arm, especially after and during attempts at writing; at times when walking her knees "gave way" suddenly, and it has caused her to fall occasionally. Eight days before entering clinic these symptoms suddenly increased and others appeared, brought on by excitement. The speech became indistinct, and the extremities showed marked twitching.

Admitted to hospital on February 25, 1905.

Present Condition.—A rather delicate, pale girl of normal height. Marked twitchings in all extremities is noticeable. The movements are purposeless in character and make it difficult for patient to remain on a chair. The head is turned from right to left frequently from before, backwards; indeed, her head touches the shoulders at times. The tongue is rolled about the mouth, and smacking and other lingual sounds result. The speech is moderately disturbed. The breathing is irregular. Heart sounds clear and organ not enlarged. Pulse 90. Arm and leg reflexes present.

February 26.—Restlessness has increased and the speech is more disturbed.

February 27.—The motor restlessness is tremendous and painful to see. The speech is too indistinct to be intelligible. It is difficult to feed the patient. Pulse good—90. During the nights she has attacks of fear.

February 28.—No change for better. Notwithstanding careful nursing in bed, the patient has bruised her legs by kicking about. Bromides and baths have no effect on muscular restlessness. During the night symptoms increase and marked hallucinations set in. These consist in the belief that men are threatening her with knives, and she has made numerous attempts to jump from the window, and clutches the wall in great fear. She is constantly delivering an unintelligible jargon.

This train of symptoms, with occasional slight improvement, but always followed by return to the unfortunate restless state, kept up until March 4, when the temperature took a sudden drop to 37.4.° She suddenly began to vomit violently, and although very restless, gradually became comatose, finally failed to react to stimulation, and death followed, apparently due to exhaustion.

Blood Cultures.—These were made on several occasions, but always negative, until March 3-4, the day before and that on which death took place. The cultures grew out very slowly on gelatine, which failed to liquefy; on agar-agar, a line of fructiform colonies; on blood serum, a very similar fine coating of colonies, and on gelatine plates, small transparent colonies, with fine granulations and slightly raised borders. Microscopical preparations showed these cultures to consist of delicate chains of cocci which stained by Gram. These chains consisted usually of six to eight cocci or formations of irregular bunches of same. In general the cultures resembled those of streptococci, to which the authors first classified them.

When one-half cubic centimeter of a fresh bouillon culture was injected into a rabbit the animals died in 14 days with slight fever and marked emaciation. One rabbit showed post-mortem embolic abscesses in the left kidney and a necrosis of the heart muscle; in another a fresh erosion existed on the arch of the aorta. No changes were found in any joint articulations.

Histological examination of the child's organs revealed a bronchopneumonia, a fresh endocarditis, brain substance edematous, and small perivascular hemorrhages about the brain-vessels and increase of round cells and glia cells (Weber). These results correspond with the results obtained by several other workers on the autopsy findings in cases dead of acute chorea. It is not infrequent to find that the organism which has apparently been the etiological factor has died out, so that cultures made from the organs are negative. As the author points out, the best results for obtaining positive results from blood cultures are by the Schottmüller method, by which large quantities of blood are withdrawn and this used. Unfortunately, they were not able to obtain a large amount of blood serum in their cases, and this, no doubt, may have helped to interfere with the results.

PROCEEDINGS

OF THE

MEDICAL AND CHIRURGICAL FACULTY

OF MARYLAND

NOTICE.

THE committee on arrangements, in a preliminary notice, announces the dates of the annual meeting of the State Faculty and gives an outline of the arrangements made for the entertainment of the members.

Dr. Jacobi of New York will deliver the annual oration. The fame of this distinguished physician is so widely known that this announcement alone should insure a full attendance. Anyone who has listened to Dr. Jacobi always looks forward with pleasure to another opportunity.

The plans for the social entertainment of the members are unusually elaborate. Dr. Earle's reception and the quarantine excursion certainly will be pleasant occasions.

The program of the scientific sessions is not complete, but the advance notices indicate a number of instructive papers on interesting subjects.

A full attendance of delegates from the county societies is urged because of the important business matters to be decided at the meeting. Delegates should bring proper credentials to avoid possible complications.

BALTIMORE CITY MEDICAL SOCIETY.

THE meetings of the various sections of the Baltimore City Medical Society during February have been very interesting and fairly well attended. The following copy of the monthly announcement shows the scope of the meetings:

SECTION ON CLINICAL MEDICINE AND SURGERY—8.30 P. M.

Randolph Winslow, chairman; L. V. Hamman, secretary; Harvey G. Beck, third member of executive committee.

Friday, February 2.—(1) "Some Anomalies of the Thoracic Aorta," Dr. J. G. Wiltshire; (2) "The Etiology of Syphilis—Demonstration of Spirocheta," Dr. Albert Keidel; (3) "Newer Methods of Treatment in Syphilis," Dr. J. T. Geraghty.

Friday, February 16.—The Diagnosis and Treatment of Diseases of the Heart and Blood-Vessels Most Often Met With in General Practice: (1) "Failing Compensation in Valvular Disease," Dr. C. B. Gamble, Jr.; (2) "Chronic Myocarditis in Arteriosclerosis," Dr. D. Streett; (3) "Aortic Aneurism," Dr. L. F. Barker; (4) "The Cardiac Complications of Renal Disease," Dr. I. E. Atkinson.

SECTION ON GYNECOLOGY AND OBSTETRICS—8.30 P. M.

L. E. Neale, chairman; L. M. Allen, secretary.

Friday, February 9.—(1) "Extrauterine Pregnancy," Drs. L. E. Neale and J. M. Hundley; (2) Report of cases, Dr. T. S. Cullen.

SECTION ON NEUROLOGY AND PSYCHIATRY—AMPHITHEATER OF THE JOHNS HOPKINS HOSPITAL, 8.30 P. M.

E. N. Brush, chairman; A. P. Herring, secretary.

Wednesday, February 14.—(1) Exhibition of cases, Drs. L. F. Barker, H. M. Thomas, Cushing, and others.

SECTION ON OPHTHALMOLOGY AND OTOLOGY—8.30 P. M.

J. F. Crouch, chairman; Wm. Tarun, secretary.

Friday, February 23.—(1) "Cases of Ocular Disease Due to Diseases of the Accessory Sinuses," H. Manning Fish, New York (by invitation).

SECTION ON LARYNGOLOGY AND RHINOLOGY—8.30 P. M.

F. D. Sanger, chairman; S. Rosenheim, secretary.

Friday, February 23.—(1) Exhibition of cases; (2) "Nasal Headaches," Dr. R. H. Johnston.

TALBOT COUNTY MEDICAL SOCIETY.

THE annual meeting of the Talbot County Medical Society was held in Easton, January 31. The attendance was good and spirited, and an interesting program carried out. Drs. Taylor, Cullen, and Allen of Baltimore were among the speakers.

The following officers were elected for the ensuing year: President, Julius A. Johnson of Easton; vice-president, Edw. R. Trippe of Easton; secretary and treasurer, Philip L. Travers of Easton;

board of censors, Kennedy Wilson of Tilghman, S. C. Trippe of Royal Oak, C. H. Rose of Cordova; delegate to the Medical and Chirurgical Faculty of Maryland, J. A. Stevens of Oxford.

ANNE ARUNDEL COUNTY MEDICAL SOCIETY.

THE regular annual meeting of the Anne Arundel County Medical Society took place in the parlors of the Maryland Hotel, Annapolis, Md., on Tuesday, January 16, 1906, Dr. H. B. Gantt presiding.

After discussion of various medical subjects, the following officers for the ensuing year were elected: President, Harry B. Gantt, Millersville; vice-president, W. Clement Claude, Annapolis; secretary, Louis B. Henkel, Jr., Annapolis; treasurer, Frank H. Thompson, Annapolis; censors—one year, Wm. S. Welch, Annapolis; two years, Thos. H. Brayshaw, Glen Burnie; three years, J. M. Worthington, Annapolis; delegate to the Medical and Chirurgical Faculty, Thos. H. Brayshaw, Glen Burnie; committee on public health and legislation, Z. D. Ridout, St. Margarets; J. O. Purvis, Annapolis; J. J. Murphy, Annapolis.

F. H. Thompson, treasurer, read his report for the year, which showed a balance in hand of $72.25.

After routine business the society adjourned to meet again at the call of the president.

THIS month we publish the report of the treasurer of the State Faculty, the financial report of the State Board of Medical Examiners, the supplementary list of members of the Baltimore City Medical Society and non-resident members of the Medical and Chirurgical Faculty of Maryland, and the list of members of the county societies.

We call attention to the necessity of notifying the secretary of any change of address.

TREASURER'S FINANCIAL STATEMENT.

APRIL 27 TO DECEMBER 31, 1905.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

Receipts.

Balance from last report	$717 60
Rent of hall, non-affiliated societies	22 50
Rent of hall, B. C. M. S., for section meetings	144 00
Dues of members Baltimore City Medical Society	2,280 50
Dues of members county medical societies	418 30
Dues of members in arrears	39 00
Dues of non-resident members	37 50
Baker Fund, interest	200 00
Exhibits	40 00
Total	$3,899 40

Expenses.

Salaries	$802 50	
Banquet Committee	39 50	
Legislation Committee	35 85	
Johns Hopkins University, use McCoy Hall	22 00	
Repairs, etc., to property	74 72	
Insurance on property	31 50	
Subscription to journals	336 28	
Binding of journals, etc	287 15	
Telephones	100 50	
Coal and gas account	293 94	
Deutsch Company, balance due 1903-05 and interest	210 62	
Printing, etc	92 25	
Association Medical Librarians, dues and expenses	55 00	
American Bonding Co	7 50	
Attorney's fee	50 00	
Orator's expenses, semiannual meeting	24 50	
Postage	45 00	
Supplies	37 72	
Incidentals	30 39	
Return of membership fees	14 00	
Commonwealth Bank, note	1,000 00	
Commonwealth Bank, interest	42 53	
Total		3,633 45
Balance		$265 95

BALTIMORE CITY MEDICAL SOCIETY.

Receipts.

Balance from last report		$119 25
Dues and membership fees		2,752 50
Dr. Reik, on account collation		15 00
Total		$2,886 75

Expenses.

Medical and Chirurgical Faculty, dues	$2,280 50	
Printing bulletins for section meetings	20 25	
Postage, bulletins for section meetings	16 50	
Rent of hall for section meetings	144 00	
Clerical assistant	127 50	
Billheads, envelopes, etc	18 50	
Commission on collecting bills	45 40	
Postage on bills	44 00	
Collation, annual meeting	50 00	
Orator's expenses, annual meeting	15 00	
Return of membership fees	2 00	
Total		$2,763 65
Balance		$123 10

Medical and Chirurgical Faculty, balance	$265 95
Baltimore City Medical Society, balance	123 10
Amount Commonwealth Bank	$389 05

JOHN RUHRAH,
Treasurer.

Audited and found correct:
DR. T. A. ASHBY,
DR. H. WOODS, JR.

REPORT OF J. McP. SCOTT,

TREASURER STATE BOARD OF MEDICAL EXAMINERS OF MARYLAND, OF RECEIPTS AND DISBURSEMENTS FROM APRIL 25, 1904, TO APRIL 22, 1905.

1904.	*Receipts.*	
April 25	Cash balance as per report	$724 09
1905.		
April 22	Fees, licenses, permits, and transfers	2,940 00
	Total receipts	$3,664 09

1904.	*Disbursements.*	
April 30	Edwin J. Dirickson, examiner	$88 38
May 5	Medical Journal Co., electrotypes	6 00
" 5	H. K. Startzman, postmaster	5 30
" 9	H. K. Startzman, postmaster	5 30
" 11	W. W. Wiley, examiner	26 00
" 30	A. S. Abell Company, advertisement May examination, 1904	10 80
" 30	Evening News Publishing Co., advertisement May examination, 1904	11 16
" 31	John B. Deming, Esq., expense of transcribing list of registered physicians in Superior Court	5 00
" 31	Eugene McE. Van Ness, expense of completing street addresses of registered physicians	2 00
June 11	James Z. Kennard, returned fee	15 00
" 15	George Potort, making 175 tables	124 69
" 16	Nearie G. Langdon, returned fee	15 00
" 23	D. M. Henderson, stationery June, 1904, examination	37 03
" 23	James W. Bangert, rent of Lehman's Hall, chairs and light, June, 1904	71 60
" 23	F. Schneider, janitor Lehman's Hall	5 00
" 25	Martha Bomberger, typewriting	2 80
" 25	E. P. Wright, typewriting questions June, 1904, examination	38 05
" 25	Guy T. G. Smith, services as watcher June, 1904, examination	22 00

July	4	U. S. Engraving Co., rubber stamp	2 00
"	4	B. D. Harison, secretary, membership fee American Confederation of Reciprocating Examining and Licensing Boards	10 00
"	7	Robt. J. B. Turner, transfer of tables	6 00
"	7	W. J. Means, Baltimore University School of Medicine, certified copy of testimony	4 00
"	7	American Academy of Medicine, subscription to Bulletin	3 00
"	21	Edwin J. Dirickson, examiner	124 21
"	21	Eugene McE. Van Ness, examiner, and expenses incurred as such	242 12
"	21	B. W. Goldsborough, examiner	133 42
"	29	Ira W. Hays, printing to date	12 75
Aug.	8	Hagerstown Bookbinding & Printing Co.	16 00
"	8	Hagerstown Bookbinding & Printing Co.	13 00
"	8	J. McP. Scott, secretary, expenses to meeting in Chicago of Confederation of Examining and Licensing Boards	52 37
"	29	J. McP. Scott, salary as secretary and treasurer to June 4, 1904	500 00
"	29	J. McP. Scott, traveling expenses per diem at meetings	201 32
Sept.	19	H. K. Startzman, postmaster, paper wrappers	5 20
"	23	L. A. Griffith, examiner	151 25
"	24	Mary F. Shaneberger, typewriting	5 00
Oct.	1	Mary F. Shaneberger, typewriting	5 00
"	8	Western Union Telegraph Co	1 70
"	8	Eugene McE. Van Ness, examiner	39 65
"	8	U. S. Engraving Co., seal	4 50
"	14	Detective Agency, West & Lyons	75 00
"	20	Arnold M. Rosett, overpayment of fee	5 00
"	25	Adam Rupert, clerk, costs in Schwatka case	6 10
"	25	John B. Deming, Esq., salary as attorney to October 15, 1904	200 00
Nov.	22	A. S. Abell Company, advertisement December, 1904, examination	12 06
Dec.	3	Evening News Publishing Co., advertisement of December, 1904, examination	11 34
"	4	Chas. H. Martin & Co., identification cards	10 50
"	24	Adam Rupert, clerk, costs	6 10
"	24	A. S. Abell Company, publishing announcement of Judge Stockbridge's decision in Flautt case	15 00
"	24	D. M. Henderson, stationery December, 1904, examination	4 68
"	24	Gustave Caution, janitor	5 00
"	24	E. P. Wright, typewriting and supplies at December, 1904, examination	32 85

1905.				
Jan.	3	John G. Rea, returned fee	15 00	
"	25	E. J. Dirickson, examiner	113 55	
Feb.	13	B. W. Goldsborough, examiner	58 28	
"	23	B. W. Goldsborough, examiner	6 25	
"	27	B. D. Harison, secretary Examining and Licensing Boards, annual dues	10 00	
April	13	Herbert Harlan, examiner	197 60	
"	15	John B. Deming, Esq., half-year's salary to date	100 00	
"	15	John B. Deming, paid to Max Ways, clerk, for list of registered physicians	2 50	
"	19	Eugene McE. Van Ness, examiner	86 00	
"	19	Hagerstown Bookbinding & Printing Co	19 25	
"	20	Franklin B. Smith, examiner	166 50	
"	20	J. A. Stevens, examiner	232 50	
"	22	J. McP. Scott, cash paid for telegrams, postage, expressage since last report	40 88	
				3,455 54
		By balance to close account		208 55
				$3,664 09
		April 22, to cash balance		208 55

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

ADDITIONS.

BALTIMORE CITY MEDICAL SOCIETY.

Howard, Wm. Lee, 1126 N. Calvert st.
McElfresh, C. W., 854 W. Lombard st.
Messick, W. I., 639 Dolphin st.
Penning, O. P., 1711 St. Paul st.
Tompkins, J. A., 905 Cathedral st.
White, W. W., Jr., 1101 N. Broadway.

Non-Resident Members.

Donohoo, H. C., Chester, Pa.

LIST OF MEMBERS OF COUNTY MEDICAL SOCIETIES.

Allegany County.

Boucher, S. A., Barton, Md.
Brace, C. H., Cumberland, Md.
Broadrup, Geo. L., Cumberland, Md.
Claybrook, E. B., Cumberland, Md.
Cobey, J. C., Frostburg, Md.
Doerner, John A., Cumberland, Md.
Duke, Edgar T., Cumberland, Md.
Fechtig, R. Y., Cumberland, Md.
Foard, Wm. R., Cumberland, Md.
Franklin, A. Leo, Cumberland, Md.
Gardner, C. B., 20 S. Liberty st., Cumberland, Md.
Harris, Edward, Cumberland, Md.
Hawkins, Arthur H., Cumberland, Md.
Hodges, Wm. R., Cumberland, Md.
Johnson, J. T., Cumberland, Md.
Jones, E. L., Cumberland, Md.
McDonald, T. B., Cumberland, Md.
McGann, J. H., Barton, Md.
Noble, Wm. H., Cumberland, Md.
Owens, C. L., Cumberland, Md.
Price, James Marshall, Frostburg, Md.

Skilling, W. Q.,
Lonaconing, Md.
Smith, A. G.,
Midland, Md.
Twigg, Wm. F.,
Cumberland, Md.
Wailes, Henry S.,
Cumberland, Md.
White, E. H.,
Cumberland, Md.
Wilson, J. Jones,
Cumberland, Md.

Anne Arundel County.

Anderson, S. H.,
Woodwardville, Md.
Brayshaw, J. L.,
Friendship, Md.
Brayshaw, T. H.,
Glen Burnie, Md.
Brooke, C. H.,
Brooklyn, Md.
Claude, W. C.,
Annapolis, Md.
Davidson, B. R.,
Davidsonville, Md.
DuBois, J. W.,
Gambrills, Md.
Gantt, H. B.,
Millersville, Md.
Henkel, Charles B.,
Annapolis, Md.
Henkel, Louis B., Jr.,
Annapolis, Md.
Hepburn, S. S.,
Annapolis, Md.
Murphy, J. J.,
Annapolis, Md.
Purvis, J. O.,
Annapolis, Md.
Ridout, Z. D.,
St. Margaret, Md.
Stallings, A. S.,
Annapolis, Md.
Thompson, F. H.,
Annapolis, Md.
Tuck, W. G.,
Annapolis, Md.
Walton, H. R.,
Annapolis, Md.
Welch, W. S.,
Annapolis, Md.
Wells, George,
Annapolis, Md.
Winterson, C. R.,
Elkridge, Md.
Worthington, J. M.,
Annapolis, Md.

Baltimore County.

Akehurst, J. S.,
Arlington, Md.
Akehurst, J. S.,
Norrisville, Md.
Benson, B. R.,
Cockeysville, Md.
Benson, J. E.,
Cockeysville, Md.
Bowen, J. S.,
Mt. Washington, Md.
Brush, E. N.,
Towson, Md.
Bussey, B. F.,
Texas, Md.
Campbell, W. H. H.,
Owings Mills, Md.
Cassidy, Henry F.,
408 Roland ave.,
Roland Park, Md.
Corse, W. D.,
Gardenville, Md.
Cox, N. H. D.,
Arlington, Md.
Drach, J. H.,
Butler, Md.
Dunton, Wm. R., Jr.,
Towson, Md.
Emory, T. H.,
Taylor, Md.
Gorsuch, J. F. H.,
Fork, Md.
Green, J. R.,
Towson, Md.
Green, John S.,
Gittings, Md.
Gundry, A. T.,
Catonsville, Md.
Gundry, L. H.,
Relay, Md.
Hall, T. B.,
Mt. Winans, Md.
Harrison, H. T.,
Loch Raven, Md.
Hebb, H. J.,
Randallstown, Md.
Hess, H. C.,
Station H, Govans, Md.
Hocking, George H.,
Govans, Md.
Jarrett, H. S.,
Towson, Md.
Jarrett, J. H.,
Towson, Md.
Keating F. W.,
Owings Mills, Md.
Macgill, C. G. W.,
Catonsville, Md.
Macgill, John C.,
Catonsville, Md.
Massenberg, R. C.,
Towson, Md.
Mattfeldt, C. L.,
Catonsville, Md.
Mitchell, A. R.,
Hereford, Md.
Monmonier, J. C., Jr.,
Wetheredsville, Md.
Naylor, Harry,
Pikesville, Md.
Naylor, Henry L. P.,
Pikesville, Md.
Owings, T. B.,
Ellicott City, Md.
Patterson, F. W.,
Catonsville, Md.
Peltekian, H. K.,
Sparrows Point, Md.
Piper, Jackson,
Towson, Md.
Porter, M. G.,
Roland Park, Md.
Price, T. Rome,
Glyndon, Md.
Shipley, H. F.,
Granite, Md.
Smart, L. G.,
Lutherville, Md.
Smith, W. L.,
Sherwood, Md.
Todd, William J.,
Mt. Washington, Md.
Wade, J. Percy,
Catonsville, Md.
West, Marshall B.,
Catonsville, Md.
White, W. R.,
Catonsville, Md.
Whiteley, Benjamin,
Catonsville, Md.
Wilson, James H.,
Fowblesburg, Md.
Woodward, James S.,
Sparrows Point, Md.
Wyse, W. P. E.,
Pikesville, Md.

Calvert County.

Briscoe, Philip,
Mutual, Md.
Chambers, G. F.,
Cove Point, Md.
Chaney, Thomas M.,
Chaney, Md.
Hinman, Ellsworth H.,
Lower Marlboro, Md.
King, Isaac N.,
Barstow, Md.
Leitch, J. W.,
Huntingtown, Md.
Marsh, W. H.,
Solomon's Island, Md.

Paddy, Estep,
Barstow, Md.
Talbot, W. H.,
Willows, Md.

Caroline County.

Downes, J. Raymond,
Preston, Md.
Fisher, R. R.,
Denton, Md.
George, Enoch,
Denton, Md.
Goldsborough, W. W.,
Greensborough, Md.
Hardcastle, A.,
Denton, Md.
Nichols, F. N.,
Denton, Md.
Phillips, J. R.,
Preston, Md.
Saulsbury, Theodore,
Burrsville, Md.

Carroll County.

Billingslea, J. H.,
Westminster, Md.
Birnie, Clotworthy,
Taneytown, Md.
Bromwell, J. E.,
Ridgeville, Md.
Brooks, F. F.,
New Windsor, Md.
Brown, G. H.,
New Windsor, Md.
Carey, Charles J.,
Sykesville, Md.
Clarke, Joseph C.,
Sykesville, Md.
Cronk, A. T.,
Taylorsville, Md.
Cronk, E. D.,
Winfield, Md.
Diller, Charles H.,
Detour, Md.
Foutz, Charles R.,
Westminster, Md.
Gaver, W. E.,
Mt. Airy, Md.
Heffenger, C. W.,
Sykesville, Md.
Hering, J. T.,
Westminster, Md.
Hill, Charles I.,
Union Bridge, Md.
Hoff, D. E.,
Union Bridge, Md.
Kemp, Luther,
Uniontown, Md.
Morris, John N.,
Sykesville, Md.
Norris, M. D.,
Eldersburg, Md.
Roop, C. E.,
Taneytown, Md.
Sprecher, Daniel B.,
Sykesville, Md.
Stewart, J. J.,
Union Mills, Md.
Waters, Somerset R.,
Watersville, Md.
Weaver, J. F. B.,
Manchester, Md.
Wells, William D.,
Westminster, Md.
Wertz, T. H.,
Lineboro, Md.
Winterson, G. Craggs,
New Windsor, Md.
Woodward, L. K.,
Westminster, Md.
Ziegler, John S.,
Melrose, Md.

Cecil County.

Black, R. M.,
Cecilton, Md.
Bratton, Howard,
Elkton, Md.
Bromwell, R. E.,
Port Deposit, Md.
Carrico, C. P.,
Cherry Hill, Md.
Cawley, Wm. D.,
Elkton, Md.
Clemson, Harry E.,
Port Deposit, Md.
Conrey, Thomas J.,
Chesapeake City, Md.
Dare, George S.,
Rising Sun, Md.
Ellis, Charles M.,
Elkton, Md.
Fisher, S. Groome, Jr.,
Port Deposit, Md.
France, J. I.,
Port Deposit, Md.
Gifford, D. L.,
Perryville, Md.
Housekeeper, P. B.,
North East, Md.
Jamar, John H.,
Elkton, Md.
Jenness, John H.,
Rising Sun, Md.
Laws, Clifton C.,
Chesapeake City, Md.
Mitchell, H. Arthur,
Elkton, Md.
Rittenhouse, G. S.,
North East, Md.
Roman, Samuel T.,
Conowingo, Md.
Stump, George M.,
Perryville, Md.
Taylor, L. G.,
Perryville, Md.
Wright, Jesse J.,
Warwick, Md.

Charles County.

Not organized.

Dorchester County.

Brotemarkle, C.,
Vienna, Md.
Goldsborough, Brice,
Cambridge, Md.
Hitch, Victor E.,
East New Market, Md.
Houston, W. H.,
Fishing Creek, Md.
Jones, Edward L.,
East New Market, Md.
Linthicum, R. L.,
Church Creek, Md.
Mace, John,
Cambridge, Md.
Myers, G. R.,
Hurlock, Md.
Price, R. J.,
Vienna, Md.
Shriver, J. K., Jr.,
Taylor's Island, Md.
Smith, Benjamin L.,
Madison, Md.
Steele, Guy,
Cambridge, Md.
Stokes, Sydney A.,
Cambridge, Md.
Wolff, Eldridge E.,
Cambridge, Md.

Frederick County.

Annan, Robert L.,
Emmittsburg, Md.
Beatty, J. E.,
Middletown, Md.
Beckley, E. L.,
Middletown, Md.
Birely, M. A.,
Thurmont, Md.
Brawner, J. B.,
Emmittsburg, Md.
Browning, Ralph,
Myersville, Md.
Claggett, Samuel L.,
Petersville, Md.
Crum, C. W. R.,
Jefferson, Md.
Devilbiss, D. M.,
Woodville, Md.
Downey, J. W.,
New Market, Md.
Dutrow, H. S.,
Frederick, Md.
Fahrney, Henry P.,
Frederick, Md.

Fout, Raymond C., Kemptown, Md.
Getzendanner, J. W., Myersville, Md.
Goldsborough, C. W., Frederick, Md.
Goodell, C. F., Frederick, Md.
Goodman, J. M., Frederick, Md.
Haffner, S. T., Frederick, Md.
Hedges, H. Slicer, Brunswick, Md.
Hendricks, J. O., Frederick, Md.
Hopkins, H. H., New Market, Md.
Hopkins, H. H., Jr., New Market, Md.
Horine, A. G., Brunswick, Md.
Johnson, W. C., Frederick, Md.
Kable, W. H., Woodsboro, Md.
Lamar, A. A., Middletown, Md.
Lieb, Joseph H., Mt. Pleasant, Md.
Ligget, John J., Ladiesburg, Md.
Long, W. A., Frederick, Md.
McCurdy, Ira J., Frederick, Md.
McKinney, D. F., Limekiln, Md.
Miller, T. E. R., Lewistown, Md.
Mullinix, E. E., Urbana, Md.
Neighbors, E. D., Lewistown, Md.
Ramsburg, D. E., Frederick, Md.
Riggs, George H., Ijamsville, Md.
Routson, T. C., Buckeystown, Md.
Sappington, C. T., Frederick, Md.
Sappington, T. P., Unionville, Md.
Sidwell, F. H., Johnsville, Md.
Smith, A. J., Wolfsville, Md.
Smith, Franklin B., Frederick, Md.
Stone, D. E., Mt. Pleasant, Md.
Stone, D. E., Jr., Emmitsburg, Md.
Stone, O. B., Libertytown, Md.
Trapnell, R. W., Point of Rocks, Md.
Wachter, C. L., Sabillasville, Md.
Wagner, Wm. H., Woodsboro, Md.
West, Levin, Brunswick, Md.
Yourtee, George, Burkettsville, Md.
Zimmerman, M. J., Walkersville, Md.

Garrett County.

Bevans, H. L., Grantsville, Md.
Boyer, H. R., Accident, Md.
Hinebaugh, M. C., Oakland, Md.
Legge, J. E., Oakland, Md.
Mason, A. J., Friendsville, Md.
McComas, H. W., Oakland, Md.
Ravenscroft, W. H., Oakland, Md.

Harford County.

Archer, Wm. S., Bel Air, Md.
Hollingsworth, C. A., Bel Air, Md.
Hughes, F. L., Darlington, Md.
Page, Robert S., Bel Air, Md.
Roth, Charles E., Edgewood, Md.
Sappington, Purnell F., Fallston, Md.
Van Bibber, Armfield F., Bel Air, Md.

Howard County.

Byrne, B. J., Ellicott City, Md.
Cissel, W. W. L., Highland, Md.
Eareckson, W. R., Elkridge, Md.
Fort, Samuel J., Ellicott City, Md.
Gambrill, W. B., Alberton, Md.
Hebb, J. W., West Friendship, Md.
Lacy, John W., Lisbon, Md.
Linthicum, T. W., Savage, Md.
Miller, F. O., Alberton, Md.
Nichols, S. A., Dayton, Md.
Owings, L. Gillis, Ellicott City, Md.
Rogers, J. M. B., Ellicott City, Md.
Sims, J. W., Glenwood, Md.
Tongue, Harrison, Elkridge, Md.
Tumblesome, Charles, Lisbon, Md.
Williams, Arthur, Elkridge, Md.

Kent County.

Barwick, G. Irwin, Kennedyville, Md.
Hessey, John H., Hanesville, Md.
Hines, W. F., Chestertown, Md.
Simpers, H. G., Chestertown, Md.
Smith, Frank W., Chestertown, Md.
Whaland, Charles W., Chestertown, Md.
Wilson, T. B., Edesville, Md.

Montgomery County.

Anderson, Edward, Rockville, Md.
Brooke, Roger, Sandy Spring, Md.
Brown, W. T., Silver Spring, Md.
Deets, James E., Clarksburg, Md.
Dyson, V. H., Laytonsville, Md.
Farquhar, C., Olney, Md.
Green, W. F., Brookville, Md.
Haddox, Horace B., Gaithersburg, Md.
Jones, Eugene, Kensington, Md.
Lansdale, P. S., Damascus, Md.
Lewis, John Latane, Bethesda, Md.
Lewis, William L., Kensington, Md.

Linthicum, Otis M., Rockville, Md.
Magruder, W. E., Sandy Spring, Md.
Manner, C. H., Rockville, Md.
Morgan, J. D., Chevy Chase, Md.
Muncaster, S. B., Rockville, Md.
Nourse, U. D., Dawsonville, Md.
Simpers, I. Newton, Germantown, Md.
Stonestreet, J. H., Barnesville, Md.

Prince George County.

Bowen, H. M., Aquasco, Md.
Coe, J. A., T. B., Md.
Duvall, John M., Springfield, Md.
Etienne, A. O., Berwyn, Md.
Eversfield, W. O., College Park, Md.
Fox, Charles A., Beltsville, Md.
Gibbons, W. H., Croom, Md.
Griffith, L. A., Upper Marlboro, Md.
Harley, R. C., Laurel, Md.
Latimer, G. W., Hyattsville, Md.
McDonnell, H. B., College Park, Md.
McMillan, S. M., Riverdale, Md.
Nally, Harry, Occokeek, Md.
Perry, V. L., Hyattsville, Md.
Ryon, Nelson A., Bowie, Md.
Sansbury, John E., Forestville, Md.
Sasscer, Reverdy, Upper Marlboro, Md.
Taylor, W. F., Laurel, Md.

Queen Anne's County.

Adams, Wilmer, Wye Mills, Md.
Bordley, James, Centreville, Md.
Coppage, W. G., Church Hill, Md.
Corkran, J. M., Centreville, Md.
Dudley, N. S., Church Hill, Md.
Fenby, Walter H., Ruthsburg, Md.
Graham, James E., Ingleside, Md.
Gregory, George W., Ford's Store, Md.
Hopkins, H. R., Queenstown, Md.
Smith, Ernest F., ———, Md.
Sudler, A. E., Sudlersville, Md.
Weedon, J. H. W. G., Church, Hill, Md.

St. Mary's County.

Hodgdon, A. L., Pearson P. O., Md.
Shermantine, Robt. W., California, Md.

Somerset County.

Alexander, H. G., Deal's Island, Md.
Atkinson, G. T., Crisfield, Md.
Collins, C. E., Crisfield, Md.
Coulbourne, W. H., Crisfield, Md.
Dickinson, G. E., Upper Fairmount, Md.
Fisher, C. T., Princess Anne, Md.
Hall, William F., Crisfield, Md.
Hoyt, Ralph L., Oriole, Md.
Lankford, H. M., Princess Anne, Md.
Simonson, G. T., Crisfield, Md.
Smith, T. J., Princess Anne, Md.
Somers, J. F., Crisfield, Md.
Wainwright, C. W., Princess Anne, Md.
Ward, C. C., Crisfield, Md.
Windsor, S. J., Dames Quarter, Md.

Talbot County.

Chaplain, James S., Trappe, Md.
Davidson, C. F., Easton, Md.
Garrison, Jas. S., Easton, Md.
Hardcastle, Hughlett, Easton, Md.
Johnson, J. A., Easton, Md.
McCormick, J. L., Trappe, Md.
Seymour, W. S., Trappe, Md.
Stevens, J. A., Oxford, Md.
Travers, P. L., Easton, Md.
Trippe, E. R., Easton, Md.

Washington County.

Baker, C. D., Rohrersville, Md.
Boose, T. B., Hagerstown, Md.
Davies, S. S., Boonsboro, Md.
Derr, H. K., Hagerstown, Md.
Foster, H. C., Clearspring, Md.
Gardner, S. H., Sharpsburg, Md.
Herman, H. S., Hargerstown, Md.
Humrichouse, J. W., Hagerstown, Md.
Keller, L. H., Hagerstown, Md.
Laughlin, Mary A., Hagerstown, Md.
McCauley, Charles S., Hagerstown, Md.
Maisch, A. C., Hagerstown, Md.
Mason, A. S., Hagerstown, Md.
Miller, D. C. R., Mason & Dixon, Pa.
Miller, Victor D., Jr., Hagerstown, Md.
Miller, W. Preston, Hagerstown, Md.
Morrison, W. B., Hagerstown, Md.
Nihiser, W. M., Keedysville, Md.
Perry, John P., Clearspring, Md.
Pittsnogle, J. E., Hagerstown, Md.
Quin, W. A., Chewsville, Md.
Ragan, O. H. W., Hagerstown, Md.

Reichard, V. M., Fairplay, Md.
Richardson, W. S., Williamsport, Md.
Scheller, C. K., Hagerstown, Md.
Schindel, E. M., Hagerstown, Md.
Scott, J. McP., Hagerstown, Md.
Shank, A. R., Clearspring, Md.
Wade, J. H., Boonsboro, Md.
Wagaman, S. M., Hagerstown, Md.
Wareham, E. A., Hagerstown, Md.
Watkins, D. A., Hagerstown, Md.
Wertz, I. M., Williamstown, Md.
West, James A., Hancock, Md.

Wicomico County.

Dashiell, W. H. H., Quantico, Md.
Dick, J. McFadden, Salisbury, Md.
Elderdice, J. M., Mardella Springs, Md.
Gray, O. J., Salisbury, Md.
Humphreys, G. W., Salisbury, Md.
Morris, Louis W., Salisbury, Md.
Slemons, F. M., Salisbury, Md.
Todd, G. W., Salisbury, Md.
Tull, H. C., Salisbury, Md.
Wilson, Lewis N., Mardella Springs, Md.

Worcester County.

Aydelotte, John S., Snow Hill, Md.
Bennum, C. H., Girdletree, Md.
Costen, Isaac T., Pocomoke City, Md.
Dickerson, John D., Stockton, Md.
Dirickson, Cyrus W., Berlin, Md.
Dirickson, Edwin J., Berlin, Md.
Hall, R. Lee, Pocomoke City, Md.
Jones, Paul, Snow Hill, Md.
Purnell, J. B. R., Snow Hill, Md.
Quinn, Samuel S., Pocomoke City, Md.
Tyndell, Ira C., Wholeyville, Md.
White, W. W., Whiton, Md.

Society Reports.

BALTIMORE CITY MEDICAL SOCIETY.

SECTION ON NEUROLOGY AND PSYCHIATRY.

MEETING HELD WEDNESDAY EVENING, JANUARY 10, 1906.

SYMPOSIUM ON BRAIN TUMORS.

The Present Status of Cerebral Localization—Dr. Wm. H. Howell. The literature on cerebral localization is large and widespread, and in many respects conflicting and contradictory. The modern conception of cerebral localization begins with the conceptions of Gall. About the beginning of the century he began to teach his system of cranioscopy, or, as it was later called, phrenology. His idea was that the brain was not a single organ, but the combination of a plurality of organs. This belief was in opposition to the current ideas of his time. He believed that the higher development of any given mental quality meant a corresponding enlargement of a certain part of the brain, which would manifest itself by an enlargement of the skull in that region. This system of phrenology soon fell into disrepute. Flourens, working during the later years of Gall's life on the functions of the brain, laid the foundations for the belief, soon to be accepted by physiologists, that the cerebrum is a single organ, functionally equivalent in all its parts. Gall's idea was revived with the work of Hetzig and Fritsch in 1870. They, working on dogs, exposed the cerebral cortex, and found that stimulating electrically in the region of the sigmoid gyrus gave distinct and constant movements in the limbs and face. This was the starting point of the present period of advance. This work at first led many physiologists to the extreme view that distinct lines could be drawn around areas of motor and sensory function, to which view many eminent neurologists still adhere. Recently there has been a reaction, particularly among those study-

ing the complexity of mental processes, so that at present the accepted view is that "histologically and physiologically the entire cerebrum is connected so intimately, part to part, that although the different regions mediate different functions, nevertheless an injury or defect in one part may influence to some extent the functional value of all other regions in the organ. The general idea of a localization of function has been established definitely, but the modern view is that the cerebrum is composed of a plurality of organs, not completely separated one from the other, as taught by Gall, but intimately associated and to a certain extent dependent one on another for their full functional importance."

V. Monakow believed that the optic fibers terminate in the optic lobes around the calcarine fissures, that this area and the distribution of these fibers made these the cortical centers for vision, and that destruction of these areas cause the same results as if the optic tracts were divided. The present idea is that this portion of the cortex is connected with other portions, making it a complex.

V. Monakow's idea was that this was a localization of function, but we know now that such an area cannot be definitely marked out. In Marie's work on aphasias he found that in none was there only a loss of power, *e. g.*, to use names, but also associated weakenings. There are three ideas at present for the proof of localization: 1. The accumulated modern histological evidence shows that different portions of the cortex can be distinguished by their structure in a way corresponding to their functions. The difference in structure is expressed in form and in staining properties, in lamination of fibers, and in cells. All the recent histologists who have worked on this subject are agreed on this point. 2. The old idea was that the motor area of the brain was localized around the Rolandic fissure, both in front and behind it. But Sherrington and Greenbaum, working the Liverpool laboratories, demonstrated that the motor area is only in front of the fissure. This discovery will make many of the old interpretations of lesions, made according to the old ideas, incorrect. 3. Flechsig's work. Some years ago he proposed a new subdivision of the cortex. According to the old view the cortex was subdivided into sensory and motor areas. Flechsig divided the areas into two great groups—the sensory and motor areas with projection fibers, and the other regions, which have no projection fibers, and are connected with the sensory and motor areas and each other by association fibers. These latter areas he classes as the centers of higher psychic activity. The importance of the contribution was the emphasis on the association areas as dealing with the higher activities and those areas having no projection fibers and no motor or sensory activities. Flechsig has supplemented this by his work on the time of myelinization of fibers in the embryo from the fourth month of intrauterine life to the fourth month of extrauterine life. As a result of this work he distinguishes 36 areas in the cortex in which the myelinization of the fibers occurs separately and in which he infers that the physiological activities are different. Of these areas 12 myelinate before birth, and are the primordial sensory and motor fibers. The next to myelinate are the areas intermediate or marginal around the first group, and are the association areas for the first degrees of mental activity. The last to myelinate are the association or silent areas, which are the areas for the highest functional activity, and lie in the frontal and para-

central lobes and the island of Reil. For these subdivisions Flechsig has anatomical evidence. Interpretation: As the first areas to develop in the cortex are the primary-sense centers—smell, sight, hearing, and touch—the bordering areas are the areas or the centers of recognition of feeling and knowing, and perhaps the seat of organized memories connected with the primary-sense centers. The memory centers outside of these store the records of past impressions. This interpretation is based on clinical evidence gotten largely from the study of aphasias.

Localizations accepted at the present time: The precentral convolution is the true motor area of the cortex. It extends from the fissure of Sylvius anterior to and along the fissure of Rolando. It is characterized histologically by Betz cells. In front of this, in the posterior part of the third or inferior frontal convolution, is Broca's speech center, and above it the center for writing. Close to and in front of these areas are the memory centers for motor acts. Lying more forward are the frontal areas, and further forward the prefrontal areas, to which all evidence in recent work attributes the highest seat of mental power. Dr. Bolton's work on dementia shows that the focus is greatest in this region. V. Monakow insists that the 200 cases from which Dr. Bolton's conclusions were drawn are not sufficient basis for his conclusions. There has been a great deal of controversy from the adherents of both sides of the question, and both sides have cited the celebrated crowbar case. Going back from the Rolandic fissure is the postcentral convolution, which is the area for the body senses. The evidence is conclusive that this area functions in this way, for Campbell has shown that in the degeneration in tabes it is this area that is affected without involvement either backward or forward. Whether or not pain and temperature senses are localized here has not been determined. At any rate, injury here dulls, but does not destroy completely the pain sense; so there must be a participating subcortical center. The optic fibers end around the calcarine fissure; so a lesion in this region on the occipital lobe results in a hemianopic condition. V. Monakow thinks the fibers from the fovea centralis have a distribution over the whole occipital lobe. The center for hearing is also satisfactorily determined. It is situated in the first temporal lobe near the fissure of Sylvius. The evidence from physiologists in regard to this area has been contradictory, but the anatomical evidence is most satisfactory. The location of the olfactory center depends on histological evidence, which tends to show that the chief cortical termination of the olfactory paths is found in the hippocampal lobe, especially in its distal portion, the uncinate gyrus. The evidence for the location of the taste center breaks down altogether. It is usually assumed that it lies in the hippocampal convolution posterior to the area of olfaction, but there is no definite evidence for this location.

The Mental Phenomena Associated With Brain Tumor—Dr. W. R. Dunton, Jr. We can tell the symptoms of brain tumor, but it is difficult to separate the different symptoms into groupings. We suppose that one of the questions to be answered tonight is, Are mental symptoms invariably present in brain tumor? In response we may say that there are many so-called brain tumors which may never show symptoms, *e. g.*, small meningeal tumors and small tumors in the posterior part of the brain. There are three groups of mental symptoms in brain tumors: 1. Symptoms approach-

ing the psychoses, *i. e.*, simulating paresis, melancholia, etc. This group is comparatively rare. 2. A large group of abnormal psychic conditions, such as dementias and morais. 3. The mental weakness found in most cases, such as slow cerebration, apathy, and dullness. A most important question is, Do the mental symptoms afford any means of localizing the tumor? Paul Schuster, studying the mental symptoms of brain tumor in 700 cases, found that mental symptoms are much more apt to accompany tumors of the anterior than tumors of the posterior brain, and that of these symptoms a mental dullness without mental excitation was most common. Bramble has reported 26 cases of brain tumor in "Brain." Eleven of these were cases of frontal tumor, only seven of which showed mental symptoms, and these were very varied. The symptom of witty replies has been supposed to be pathognomonic of frontal tumor, but Mueller says it may accompany tumors in other regions. Schuster, besides saying that mental weakness without excitement is common in frontal tumor, says that in orbital tumors the excitement is common. The indefinite results of studies on this question go to show that it is difficult to settle upon any symptoms that are pathognomonic of tumor in the frontal area. The time of occurrence of the mental symptoms associated with brain tumor is of the most importance. The symptoms are of most diagnostic value when studied early, for later we have the pressure symptoms complicating the picture. Schuster has studied the frequency of brain tumors in regions. He gives in the order of frequency: 1, cerebellum; 2, frontal lobes; 3, motor region; 4, corpus callosum. He gives the order of frequency of mental symptoms to be: Corpus callosum, 100 per cent.; frontal lobes, 99.3 per cent., and cerebellum, 35 per cent.

Case of Brain Tumor—Dr. I. J. Spear. The patient was a white male, aged 42. Complaint was convulsions, accompanied by unconsciousness. He had always been healthy. He had no venereal history, but was a moderate drinker. There was a history of convulsive seizures 18 months before, and with them there was a definite aura, giving him time to lie down when the attacks were coming on. He claimed to be able to prevent or ward off the oncoming attack at times by catching hold of something. After the attacks the patient was very drowsy. During attacks he never injured himself. During the course of this affection the patient had been put on potassium iodide and bromides, which caused considerable improvement in his condition, which, however, was only transitory. As the attacks, which resembled petite mal, became worse, he complained of a weakness in the perineal group of muscles, and later a weakness in his entire left side. A diagnosis of progressive hemiplegia was made in May. At this time the eye grounds were normal. The deep reflexes were marked, but there was no complaint of pain or headache. The patient left the hospital in June, but gradually grew worse, the most marked symptoms being headache, sleepiness, and slow pulse. In August a diagnosis of tumor of the frontal lobe was made. At this time the headache was severe, there were persistent twitchings of the left arm and shoulder, and a paralysis of the left leg. A few days before operation an examination of the eye grounds showed choked discs. At operation a tumor was found growing from the frontal lobe pressing on the post-frontal lobe and motor area. The tumor was the size of a hen's egg. The patient recovered from the anesthetic and talked rationally, but collapsed, and died some hours later.

Dr. Barker: The medical diagnosis of brain tumors interests me most. There is a great lack of attention to persistent headaches coming on in persons who have not been subject to headaches. These are frequently treated with antiheadache powders, and no thought is given to an examination of the eye grounds. The neurologist thinks of brain tumor, but the general practitioner is not nearly so apt to do so. The importance of an examination of the eye grounds should never be overlooked. With the portable electric ophthalmoscope to be had there is no reason for any practitioner not availing himself of this means to diagnosis. But the fact is not alone on the medical side, for often surgeons not well trained in diagnosis have operated where there was no tumor which might have been suspected from the evidence. Too often the localization symptoms come too late for surgical interference, and anyway the localization symptoms are not direct clues, for they may be due to so many different causes in the brain. The syndrome of Weber, *i. e.,* ptosis of the eye on one side and hemiplegia on the other side, we have been taught to believe is caused by a lesion in the cerebral peduncle, but results of autopsies have shown that there may be five possible causes for this syndrome. In our diagnostic studies of brain tumor we should be careful to differentiate serous meningitis or the acquired hydrocephalus of Quincke. This disease is not uncommon, and may closely simulate cerebral tumor. A bitemporal hemianopsia, when present, is an important diagnostic feature. Another diagnostic sign is that of floating cysticereus in the fourth ventricle. Oppenheimer has ventured on such a diagnosis on account of the patient vomiting when he moved his head quickly. This was caused by the irritation set up in the vagus. The diagnosis was confirmed at autopsy. Surgical interference is a great advance in the treatment of brain tumors. The results of the operation saves the patient from the violent headaches and from going blind. But before the decompression operation is done every effort should be made to discover localizing signs, so that a definite operation may be done if possible.

Dr. Osler: I need not mention the pleasure it gives me to be back with you all, and I hope this may be only the first of many returns that I may make. In going to England I have not severed myself from my associations in Baltimore or from the Medical and Chirurgical Faculty of Maryland. In connection with the subject this evening I recall two interesting historical incidents. In 1872 Dr. Ewald asked Dr. Mackenzie and myself to go with him to see the physiological experiments being made in the brain by Hitzig and Fritsch. All the subsequent work on the brain localization dates from these primary experiments. Some years later I was talking with Dr. Fuller of Grand Rapids, who was one of nature's surgeons, practicing with almost intuitive power. His attitude was "if that man has a brain tumor, I will open and see if something can be done." In 1887 he trephined a case and found a tuberculous meningitis. Nothing could be done, but it was remarkable that his foresight should prompt him to go into the cranial cavity at that time in efforts to give relief. There are three classes of brain-tumor cases: 1. Large and increasing more and more all the time, in which localizing symptoms are definite, *i. e.,* symptoms able to localize the tumor with tolerable accuracy. In many cases, though the outlook is from the nature of the subject bad, operation should be undertaken on the chances that the patient may have, for the tumor may be of a fibroid nature. 2. The in-

creasingly-diminishing group, diminishing because of the more often better diagnosis. In this group the headache and vomiting symptoms are present, but localization is difficult. The palliative operation done by Dr. Cushing should be done to relieve the headaches and choked discs. These cases should be handed to the surgeons more frequently. 3. The group more frequently under the observation of the pathologists. These cases are rarely recognized during life. Their course is generally characterized by an explosion of symptoms, with exodus soon following.

Dr. Thomas: We must emphasize the importance of localization symptoms. They mean so much more if they are gotten early, for after awhile when the tumor has grown to such an extent as to cause pressure symptoms the data is very faulty. The operation ought to be done as early as possible. In my experience operation is allowed by the physician or family only as a last resort. We should advise operation as early as possible after making a definite diagnosis.

Dr. J. Hirsh: A pathological observation: The case showed a tumor of the corpus callosum projecting forward into the frontal lobe, with a degeneration of the frontal region following the tumor. At operation the bone was thin, and there was no pulsation at the point of operation. The tumor was not felt here, but there was a myxomatous degeneration over the tumor reaching back to the prefrontal convolution. The tumor was a spindle-celled sarcoma infiltrating the cortex. Three centimeters away from the tumor was an area of degeneration and hemorrhage into the cortex. There was a slight increase of glia.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD DECEMBER 4, 1905.

Dr. W. G. MacCallum in the chair.

Exhibition of Medical Cases—Dr. W. S. Thayer. *Calcification of the Breast.*—Patient was a colored girl 16 years old, admitted October 2, complaining of headache, pain in the back and legs. The signs and symptoms enabled a positive diagnosis of typhoid to be made a few days after entrance. On the seventh day the patient passed blood in stools three times, amounting in all to about 200 c. c. Blood pressure fell to 83 from 100, and coagulation time was prolonged to 17 minutes. The patient was given 500 c. c. of a 1 per cent. calcium-chloride solution deep in the tissues under the left breast, the breast tissue itself not being entered. On the tenth day the patient was given 30 grains of calcium lactate, which was repeated every four hours for 11 days. On the twenty-sixth day a large fluctuating abscess was discovered in the left breast, which ruptured while being examined, and quantities of thin brown pus and sloughs were evacuated. This abscess had given the patient no pain. The cavity was washed with boric solution and packed with iodoform gauze. The typhoid bacillus and staphylococcus aureus were gotten from the abscess. The wound seemed to be healing nicely when, some 12 days later, a slight hardness which had been noticed around the edges of the wound was more extensive. The edges of the wound were hard and crater-like. The pale granulation tissue was full of hard white areas, which grated under a knife or probe. A microscopic examination of the

tissue showed a granulation tissue of a fibrous basis with polymorphonuclear leucocytes and a few giant cells. Nothing suggestive of tuberculosis could be found elsewhere in the patient. The wound healed steadily. The deposits examined proved to be calcium phosphate and organic matter. Beside the walls of the abscess having these areas of deposit, above the breast in the anterior axilla were several hard, stony nodules, also discrete nodules in the breast above the wound. The deposits were thought not to be as extensive when the patient was exhibited as they had been.

The condition was a unique one. No similar cases have been found in the literature. Calcification may be found in old gummata, caseating tuberculosis, atheromatous arteries, in necrotic areas, and in areas of fat necrosis. Experimental work has shown that if the circulation in the renal artery of a rabbit be cut off for from one to four hours there will be extensive deposits of calcium in the damaged cells of the kidney. Animals in which the calcium content of the blood is high, *e. g.,* rabbits, have a peculiar tendency to deposit calcium salts. Certain poisons, as the salts of mercury and lead, bring about deposits of calcium, for in poisoning by these salts extensive deposits of calcium may be found in the liver and kidney. The same is true of iodine, iodoform, and aloin. Probably these poisons produce necrosis, which allow deposition of calcium, but not all poisons which destroy cells in the liver and kidney predispose to these deposits. If these predisposing poisons are given in small quantities, and lime salts are given, deposits can be gotten much easier. With iodoform, if calcium chloride is given, deposits can be found in the kidneys. The patient got 130 grams of calcium lactate per mouth in 11 days, in addition to 5 grams of calcium chloride by infusion. The abscess resulted in formation of necrotic areas, which favor deposition of calcium salts; also the wound was dressed with iodoform gauze, which is known to favor the deposition of calcium in animals. Where the gauze touched was a rim of deposit. The hard nodules could be closely approached by following the pocket of the wound under the breast. Whether or not this explanation accounts for the cause of the deposition may be left open, but the condition, with its factors, is one which experimentally produces calcium deposits.

Yellow Fever—Remarks on the Recent Epidemic in New Orleans—Dr. F. H. Watson.—When yellow fever was dicovered to be epidemic in New Orleans last summer it bid fair to outstrip the epidemic of 1878. For some time, with the histories of the past epidemics fresh in their minds, and a realization of the paralysis of business and municipal demoralization that the known presence of yellow fever would cause, physicians have hesitated to diagnose and to report cases. Since 1897 there has been more or less yellow fever in New Orleans. The weather conditions of the past summer were most favorable. The first cases were reported on July 21. The city Board of Health immediately took hold and tried to cope with the epidemic until August 9, when, in response to a call, the United States Marine Hospital and Public Health Service sent men in command of Dr. J. H. White. The city was immediately divided into sections, the ward sections being under supervision and reporting to ward headquarters, and these to central headquarters. The work consisted of, first, an educational campaign to convert the people to the mosquito theory; second, antimosquito measures for the destruction of breeding places. The stegomyia fasciata breeds mostly

in clear water, so all the cisterns and water barrels were oiled with a high-grade oil, as many of these were used to hold drinking water. All water-containing vessels were covered with netting or cotton sheeting. Stagnant pools were oiled, salted or filled in. General fumigation days were established, *e. g.,* Sunday at 10 A. M., when, with the sulphur furnished by the city, the buildings were fumigated. Third, campaign against spread of infection. The cases were isolated by covering the bed with netting and closing the room with netting; a preliminary fumigation was done, and on or before the tenth day the entire house and outhouses were fumigated. No methods other than those against the mosquito were used at any time. Every house was visited by the United States Marine Hospital authorities at least three times a week. When the fever was reported last July there were 200 cases in the city, which is a greater start than had the epidemic of 1878, in which there were 300 new cases a day. All the epidemics have died out with the approach of cold weather.

Practical Points Brought Out by the Epidemic.—Cisterns should be absolutely mosquito-tight; water barrels, troughs, etc., oiled or emptied daily. To prevent secondary cases, seal the room to keep infected mosquitoes from escaping. Sulphur is the best fumicide, but it tarnishes brass and is injurious to pianos. Pyrethal powder was used somewhat, but it does not kill, only stuns, and the mosquitoes have to be swept up and burned. If there are cases in a block, the whole block should be fumigated. Yellow fever is a house infection, for stegomyia is a house mosquito, going out only for water. It is not likely that it would fly as far as across the street, so one has practically only the infected house to deal with, unless there are other houses very close. Yellow fever does not necessarily mean black vomit, suppression of urine, and death. There may be cases so mild as to last only 12 hours. The mild cases are very dangerous, for, not being recognized or considered, they are important in spreading the disease. Diagnosis is not positive until the fourth or fifth day, so all fevers should be reported immediately and the family physician held responsible. Thorough screening and fumigation prevent secondary infections. The concealed cases are the most difficult to deal with. These and the mild unrecognized cases go hand in hand, and the fight is successful when both of these are cared for.

Studies from the Craig Colony for Epileptics, with Biograph Illustrations—Dr. W. G. Chase of Boston.—Dr. Chase gave a very interesting short talk on the development of photography from the wet-plate days of 35 years ago to the complex films and cameras used in the biograph of today. He spoke of the advantages of the biograph both in studying and in teaching medicine, and illustrated his remarks by throwing on a screen from 1500 feet of films pictures showing in characteristic movements and attitudes, in attacks and characteristic gaits, cases of rhythmic idiocy, double nystagmus, grand mal, Jacksonian epilepsy, status epilepticus, athetosis, hemiplegias, etc. The pictures were very clear, and showed patients in attitudes and movements that the average practitioner seldom sees. Particularly interesting were the pictures showing complete attacks of epilepsy, those showing the sleeping positions of the epileptics, and the swaying movements of the rhythmic idiots. The value of the biograph in clinical teaching was particularly emphasized, for these pictures could be thrown upon the screen to illustrate cases and for comparison at any time, whereas in most clinics such cases are not always available for exhibition and seldom for comparison.

MARYLAND MEDICAL JOURNAL.

JOHN S. FULTON, M.D., *Editor.*

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BALTIMORE, MARCH, 1906

FEDERAL CONTROL OF FOOD AND DRUG ADULTERATIONS.

NATIONAL legislation on adulteration of food and drugs is to be attempted again this winter. The American Medical Association has endorsed both the propositions now before Congress—the Senate bill of Mr. Heyburn and the House bill of Mr. Hepburn. The two bills are substantially the same, and it makes no practical difference which of the two becomes law. Their essential purpose is to secure honest labeling and branding of all articles of food or drink and all medicinal preparations. A similar measure failed at the last Congress, though supported by the American Medical Association, the medical journals, the National Federation of Women's Clubs, and many influential newspapers. The chances of success do not appear as good this year as last. The line-up in favor of such legislation is weaker, for a wide breach has opened between the United States Department of Agriculture and the National Association of State Food and Dairy Commissions. The opposition will be as strong as ever. The strongest opponents have always been the liquor interests, and while this line-up is not quite complete this year, their power will be substantially unimpaired. From the physician's viewpoint this measure is most important, as it relates to drugs. The quality of the medicaments prescribed for sick people is a matter of paramount concern, for the faithfulness of every subordinate agent is included in the physician's responsibility. As matters now stand any pharmacist may, and some pharmacists do, take unwarrantable liberties with the standards of the United States Pharmacopeia. Some wholesale druggists offer at lower prices substandard goods which are not distinguishable in appearance or by any outward mark from standard preparations, and in dispensing inferior drugs the retail druggist incurs no risk worth mentioning. The physician is most unlikely to suspect his pharmacist unless very surprising or alarming symptoms follow the administration of a medicine, and even if he were suspicious in cases where the results of medication are only less than or different from those expected it would be possible but very rarely to prove that any ingredient in a preparation did not conform to the recognized standard.

Provided only that no direct harm be done, the retail druggist who habitually dispenses substandard preparations need fear no punishment beyond an occasional loss of a customer.

So far as it relates to foods the Heyburn bill is of less interest to physicians. They should give active support to those provisions of the bill which restrain the manufacture and sale of fraudulent foodstuffs. These provisions are reasonable and effective. They will not injure any legitimate industry, and they will protect buyers against fraud and misrepresentation. If properly enforced, such a law will materially increase the food-buying power of a dollar, and this is the chief merit of the bill as a pure-food bill. Its hygienic advantages are nearly all comprised in the economic argument.

The sponsors of the measure ought, if possible, to restrain its intemperate advocates. Sensational or exaggerated statements about wholesale poisoning by adulterated foods will not advance the cause of reform. On the contrary, the chief weakness of the movement hitherto has been that a large part of the testimony had no basis in demonstrable fact, and collapsed instantly before a breath of intelligent inquiry. Well-informed persons will hesitate to lend the influence of their names to a campaign whose leaders are willingly helped by such extravagant and misleading propaganda as have marked the recent progress of the pure-food movement.

THE MEDICAL PROFESSION AND THE RESTRICTION OF TUBERCULOSIS.

It is not a new thing for physicians to give private advice concerning the domestic prophylaxis of tuberculosis. The best physicians have been doing that for 10 or 12 years past, but within the last two years this item of professional responsibility has been strongly impressed upon the medical mind, and since the State began distributing prophylactic requisites it has become possible to say that the profession as a body has undertaken the huge task of limiting the spread of tuberculosis. It is a pity that there should be any non-participants in a campaign so beneficent. Out of the 23 counties there are six in which the little work so far done is hardly worth mentioning. In three of these counties the local boards of health are so inefficient that the neglect of this business is not fairly chargeable against the profession except in so far as the profession may be held responsible for the low status of sanitary government. In the other three delinquent counties private physicians and health officers seem about equally indifferent to the spread of tuberculosis. Something has been done in every one of the 23 counties, but in these six not enough to make any impression on the tuberculosis figures. Of two counties it can be said that the prophylactic instructions authorized by the law have been given in every case now under medical observation. Perhaps this is true of other counties, but in two only is the evidence conclusive. The first year's work in registration will end on May 1. It is safe to say that the numerical results will not only exceed all previous records, but will put the State so far to the front that leadership can never be taken away unless with the consent of the people of Maryland, including the medical profession.

A sort of success which consists wholly in enumeration can never be satis-

factory, but there is substantial satisfaction in the fact that the Maryland registration has been accompanied by actual prophylactic measures. If disinfection of the sputum and disinfection of houses were as faithfully carried out as will be the case at the end of another year, it might be said that the medical profession has solved here the central difficulty in this monstrous task, namely, how to reach the consumptive in his home. In perhaps 40 per cent. of the estimated number of cases in the State prophylactic measures of some sort will have been applied in the first year, but the number of houses disinfected will fall short of the number of deaths from tuberculosis. Baltimore will contribute the major part of this shortage, for the Board of Estimates refused the necessary appropriation asked for by the commissioner of health.

To have Baltimore trailing along behind several of the counties must be an unpleasant situation for the Health Department, for the local medical profession, and for the Association for the Prevention and Relief of Tuberculosis.

THE HOME TREATMENT OF CONSUMPTION.

Are Maryland physicians doing their best to cure their consumptive patients? It is worth while to consider this question while the general assembly is making progress slowly, as it must, toward the institutional care which seems so necessary. Six years ago Dr. Osler read before the Medical and Chirurgical Faculty a paper on the "Home Treatment of Tuberculosis." He said that after the State had done its best in providing sanatoria, 95 per cent. or more of consumptives would have to be treated in their homes. He described his own experience in this work, and urged his hearers to be hopeful of good results. At the same meeting Dr. Millet of Brockton, Mass., was present, and showed what he had been doing for the consumptive wage-earners of a manufacturing town in bleak New England. Two years later a Tuberculosis Commission was created, and after another interval of two years the Tuberculosis Exposition acquainted the profession with a great variety of devices for bringing a chance to get well into the home of the consumptive. Two more years have passed, and it is very gratifying to know that the consumptives now receiving the hygienic-dietetic treatment in their homes far exceed the number of consumptives which the State can provide for in the next five or six years. Still one may ask whether physicians are doing their best. This good work should be propagated until it would become shameful for any physician to allow his cases to drift along in the old hopeless rut. In 1895 the antitoxin cure for diphtheria came to us. Five or six years were required to bring it into general use, and in some parts of the State children are yet permitted to die with diphtheria. Nevertheless the mortality from diphtheria has been cut in half since 1895, and the remaining half will soon be again divided. The modern treatment of tuberculosis is no such hopeful thing as the treatment of diphtheria, but it deserves just as much to be propagated. Is it not time for another encouraging paper on this subject? Would it not be worth while for the Medical and Chirurgical Faculty to ask all its members for reports? A great many cases have been treated in private practice during the last few years by the open-air method.

Report of Board of Medical Examiners of Maryland.

QUESTIONS AT THE DECEMBER (1906) EXAMINATIONS.

ANATOMY.

1. Describe the humerus.
2. Name and locate the valves of the heart.
3. What bones enter into the formation of the knee-joint? Name the ligaments of the knee-joint.
4. Locate the imaginary lines dividing the abdominal cavity into regions. Name regions and state the contents of the central region.
5. Give foramen of exit from cranium, function and distribution of the pneumogastric nerve.
6. Bound anterior and posterior triangles of the neck.

CHEMISTRY.

1. Define the terms oxidation and combustion, and give an example of each. Explain the meaning of the terms combustible and supporter of combustion.
2. Name the chlorine salts of mercury. Give the formula, common name and general properties of each, and discuss their relative toxicity.
3. Give the chemical definition of an alcohol, with the chemical constitution and general properties of ethyl alcohol. Give the graphic (structural) formula of methyl alcohol (CH_4O).
4. Give the classification as to chemical composition of the several types of urinary calculi. Describe the general appearance of each type, and state what reaction (acid, alkaline, etc.) one would expect in the urine with each.
5. Give in detail a reliable test for the detection of free hydrochloric acid in a specimen of gastric contents.
6. Give in detail a reliable test for the detection of sugar in the urine; also a reliable method for the quantitative estimation of albumen in the urine.

PHYSIOLOGY.

1. Describe the normal pulse and give the average rate during infancy, youth, and old age.
2. Describe the various kinds of blood corpuscles, their origin and function.
3. Describe the functions of the thyroids and parathyroids, including a consideration of the effects of their removal.
4. Give the composition of the saliva, gastric juice and pancreatic secretion, and the function of each.
5. Describe the lymphatic system and its functions.
6. State what you know of the physiological effect of bile and the effect of complete occlusion of the bile duct.

PATHOLOGY.

1. Describe in detail the method employed for the isolation of an organism in pure culture.
2. Name the various elements one would expect to find in the microscopical examination of a smear from a case of suspected diphtheria. Give in detail the method employed in making an early bacteriological diagnosis of such a case, with the method of staining and general morphology of the specific organism.
3. Name and describe in detail the various elements one would expect to find in the microscopical examination of the discharge from a case of gonorrheal urethritis, and give in detail the differential method of staining the gonococcus (Gram's).
4. Describe in detail both macroscopically and microscopically what you consider the most characteristic lesions of syphilis in the primary and tertiary stages, respectively.
5. Give the pathological anatomy of a case of tertian malarial fever of severe grade and long standing, with a microscopical description of the parasite involved. What insect acts as an intermediary?
6. Name the degenerations and infiltrations. Differentiate between fatty degeneration and fatty infiltration.

PRACTICE.

1. Define (a) emphysema; (b) neuritis; (c) psoriasis; (d) exophthalmic goiter; (e) pertussis.
2. Name the varieties of chronic nephritis. Name the sequelae of diphtheria. Name some of the complications of typhoid fever.
3. Give differential diagnosis between lobar pneumonia and empyema; between variola and varicella; between cerebral hemorrhage and uremic coma.
4. Give treatment of acute dystentery, cholera infantum, and chronic ulcerative colitis.
5. Give diagnosis and treatment and synonym of laryngeal diphtheria.
6. Give diagnosis and treatment of an acute attack of phlebitis of the lower limbs.

MATERIA MEDICA.

1. Antimony—preparations and dose of each.
2. Syrupus ferri iodidi—what is the process of preparation? Why is special care required in administering?
3. Colchicum—source and composition, preparations and doses.
4. Stramonium—preparations; symptoms of poisoning by overdose, and treatment.
5. Squill—natural order; preparations, doses, and uses.
6. Basham's mixture—composition and dose.

THERAPEUTICS.

1. Acidum hydrocyanicum—physiological action, toxicology, and therapeutic uses.
2. Amyl nitrite—physiological action, therapeutic uses, and mode of administration.
3. Write a prescription for gastralgia.
4. Therapeutics of the preparations of guiacol.
5. State several conditions in which the bromides are indicated, and explain how to administer large doses and cause the least general disturbance.
6. How do antipyretics control the temperature? Illustrate each class.

OBSTETRICS.

1. Describe the causes of and treatment for post-partum hemorrhage.
2. Under what circumstances would you irrigate after confinement, and with what solutions?
3. Name two of the most frequent non-malignant growths of the uterus. Describe their formation and method of removal.
4. What is the cause of and how would you treat the frequent inclination to urinate in the pregnant woman?

5. How would you conduct a breech presentation, and what are the dangers to be overcome?

6. What are the indications for use of forceps, and how would you apply them?

SURGERY.

1. Give diagnosis and treatment of floating kidney.

2. Describe the operation for suppurative mastoiditis.

3. Give the signs and symptoms of popliteal aneurism and indicate the treatment.

4. Give the symptoms and treatment of rupture of the bladder.

5. Give the differential diagnosis of hydrothorax and empyema. Give the treatment of one of these conditions.

6. Describe a carbuncle and give treatment.

Summary of Results of Examination Held by the Board of Medical Examiners of Maryland, December 13, 14, 15 and 16, 1905.

No.	College of Graduation.	Anatomy	Surgery	Pathology	Obstetrics	Practice	Chemistry	Materia Medica	Therapeutics	Physiology	Total	Average
*1	Johns Hopkins, '02	89	90	96	90	85	88	85	90	92	805	89
†2	Maryland Medical, '05	..	..	57	..	75	53	78	75	..	..	..
*3	University of Maryland, '05	75	90	57	75	69	60	..	57	75	558	62
†4	College of Physicians and Surgeons, '04	..	..	75	..	..	75	..	..	..	..	..
†5	Baltimore University, '04	..	..	79	..	..	80	..	..	..	..	..
†6	Baltimore University, '99	38	..	27	80	63	36	75	76	77	..	..
†7	University of Maryland, '05	..	..	76	..	..	77	85	..	..	..	..
†8	University of the South, '04	37	..	35	..	..	75	..	..	..	..	..
*9	University of Pennsylvania, '04	88	90	79	90	94	78	70	75	90	754	83
†10	Christ's Institute, '04	12	20	12	50	18	4	70	65	65	316	35
11	University of the South, '04	..	..	..	..	..	..	..	..	..	..	..
†12	University of Maryland, '04	..	..	..	..	..	81	..	..	..	..	..
*13	Johns Hopkins, '04	88	85	98	75	84	86	91	95	92	794	88
†14	Maryland Medical, '05	75	..	75	..	..	75	..	..	..	..	..
†15	Maryland Medical, '01	..	..	75	..	..	..	..	..	..	..	..
†16	Maryland Medical, '05	66	..	2	..	79	30	..	..	75	..	..
†17	Maryland Medical, '05	58	..	48	..	75	75	90	88	76	..	..
†18	Maryland Medical, '05	79	..	22	..	..	40	40	..	76	..	..
*19	Howard University, '05	86	95	90	100	82	87	91	84	85	800	88
‡20	George Washington University	91	..	..	..	..	85	76	..	92	..	..
‡21	University of Maryland	94	..	..	..	..	82	81	..	93	..	..
*22	Howard University, '05	82	90	84	100	68	80	76	77	87	744	82
†23	Maryland Medical, '05	60	..	35	..	79	61	45	62	75	..	..
†24	Maryland Medical, '04	..	..	83	..	..	86	..	..	..	..	..
†25	Baltimore Medical, '04	..	..	..	..	..	96	..	..	..	..	..
*26	University of Maryland, '05	37	85	36	80	67	30	78	77	80	570	63
*27	Johns Hopkins, '03	82	95	98	100	78	83	75	78	100	789	87
†28	University of Maryland, '04	75	..	..	..	..	..	..	..	..	..	..
*29	Maryland Medical, '05	67	95	22	100	75	30	66	64	69	588	65
†30	Maryland Medical, '05	72	75	75	90	85	81	54	48	67	647	71
*31	University of Pennsylvania, '04	49	75	65	75	75	35	76	62	71	583	64
*32	University of Maryland, '05	75	100	82	100	58	62	76	77	91	721	80
†33	University of Maryland, '05	85	..	92	..	77	75	..	..	..	..	..
†34	Maryland Medical, '04	..	..	42	..	..	70	..	..	84	..	..
*35	Howard University, '05	82	85	75	90	75	78	75	78	90	728	80
*36	College of Phys. and Surg., Boston, '05	82	75	56	90	76	68	76	74	78	675	75
‡37	University of Pennsylvania	72	..	..	..	..	65	31	..	69	..	..
38		..	..	..	..	..	..	..	..	..	..	..
*39	Maryland Medical, '05	44	70	52	65	63	35	75	81	65	550	61
*40	University of Maryland, '04	75	90	40	85	75	32	45	55	70	567	63
*41	University of Maryland, '05	82	95	86	85	81	81	86	82	93	771	85
*42	University of Maryland, '05	50	80	..	75	65	24	78	79	73	524	58
*43	Georgetown University, '04	50	90	54	90	78	70	67	73	83	655	72
†44	Maryland Medical, '04	..	..	..	..	..	76	..	..	..	..	..
†45	University of Maryland, '02	..	..	45	..	..	..	..	..	..	..	..
†46	Maryland Medical, '05	..	..	75	..	..	60	..	..	82	..	..
†47	Maryland Medical, '05	75	80	60	..	64	62	..	..	..	..	..
†48	University of Maryland, '05	..	..	89	..	75	79	..	..	..	..	..
*49	Baltimore Medical, '05	94	85	95	100	85	99	95	95	90	838	93
†50	Maryland Medical, '02	75	..	..	..	..	76	..	..	..	..	..
†51	Maryland Medical, '05	..	70	53	..	..	43	..	..	..	..	..
*52	Maryland Medical, '05	86	95	76	85	81	83	82	84	92	764	84
*53	Baltimore Medical, '05	43	75	44	95	71	45	59	57	68	557	61
*54	University of Maryland, '05	77	90	91	85	77	88	57	75	87	727	80
†55	University of Maryland, '05	..	85	66	..	58	61	..	..	..	..	..
†56	Baltimore Medical, '05	75	..	36	80	63	21	40	44	77	..	..
57		..	..	..	..	..	..	..	..	..	..	..
†58	George Washington University, '04	77	..	..	..	..	..	..	..	..	..	..
†59	Baltimore University, '03	51	..	13	..	..	7	..	..	..	..	..
*60	University of Maryland, '02	82	80	93	90	84	87	75	78	78	747	83
†61	Maryland Medical, '04	..	80	22	40	53	23	40	50	..	..	..
*62	University of Maryland, '04	87	95	75	75	79	76	84	82	98	751	83
†63	Maryland Medical, '03	..	..	78	..	..	78	..	..	..	..	..
†64	University of Maryland, '05	66	..	..	..	..	65	77	..	75	..	..
*65	Woman's Medical, Philadelphia, '04	86	80	88	85	82	75	87	84	96	763	84

Of the 62 applicants in the above list who were present there are 25 who participated in the examination for the first time, of whom 16 were successful. There were 34 applying for re-examination in branches in which they had previously failed, of whom 15 were successful, working off all branches. Primary examinations require general average of 75. Those re-examined are required to make 75 in each branch. In the above list there were three who took the examination for second-year students who have completed studies in anatomy, chemistry, materia medica, and physiology.

*Primary examinations. †Re-examinations. ‡Second-year students.

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THIRTY-FIVE YEARS OF TREATMENT BY SEVENTEEN PHYSICIANS FOR STRABISMUS, TINNITUS, HEADACHE, INDIGESTION, EYE STRAIN, ETC.

By George M. Gould,

Philadelphia, Pa.

Last year a professional gentleman, 45 years of age, brought me a letter from a well-known general physician several hundred miles away saying that the patient was a chronic sufferer from autotoxemia, which the remedies ordered had not relieved. I was to determine if the glasses worn by the patient were correct and if the ailments depended upon the eyes.

The complaints in order of their intensity or power of producing suffering and misery were: 1. A noise or roaring just back of the right ear; 2. Indigestion; 3. Pain between the eyes, also at the top of the head and in the occiput; 4. Insomnia; 5. Exhaustion after literary work; 6. Nervous symptoms, depression, etc.

He was wearing spectacles recently prescribed by a reputable oculist with the following lenses:

R. + Sph. 2.50 D. = Prism 2° B. D.
L. + Sph. 2.50 D. = Prism 2° B. U.

Under a mydriatic I found his errors were:

R. + Sph. 3.00 + Cyl. 0.62 Ax. 90° = 20/20,
L. + Sph. 3.50 + Cyl. 0.87 Ax. 55° = 20/20,

with 9° of right hyperophoria and 12° of esophoria. I ordered bifocals:

R. + Sph. 2.50 + Cyl. 0.62 Ax. 90° = Prism 3.5° B. D.
L. + Sph. 3.00 + Cyl. 0.87 Ax. 55° = Prism 3.5° B. U.
+ Sph. 0.75 added for reading.

I asked the patient to write out an epitome of his clinical history, and so far as possible I shall quote from his report, because I believe it is a too common professional error to put our own words and descriptions in the place of those of patients. If the lay report is not technically correct, it often far more accurately conforms to the facts. It is, I am well ware, a common belief that the patient's statements are not to be trusted, and even not to be used, but I do not doubt that they are sometimes, if not generally, as trustworthy as our own.*

"All the physicians I have consulted in my life," writes my patient, "as you will see, have been men of standing and prominence. Never in my life have I visited a quack, nor have I used patent medicines in any form, shape or manner.

"My left eye, before it was operated on, was turned in toward the nose and caused me to see double all things and persons, far and near. I was taken by my parents from doctor to doctor without benefit—

Physician No. 1.—"Except to wear green goggles."

Physician No. 2.—"Or brown ones."

Physician No. 3.—"Or blue ones."

Physician No. 4.—"Sometimes with a little hole in the left glass, to have the light, as they said, to attract the eye or draw it back to its normal condition. Of course, it never got back until the operation."

Physician No. 5.—"Dr. ——— of New York, after weeks of consideration, concluded he would operate with father's consent, because the right eye for about six years had done all the work, while the left was becoming more and more weak, with the left lid drooping or almost closed. The operation was performed 29 years ago and was a success in every respect. I was ordered by the operator to wear the glasses he prescribed constantly. He said that I must wear glasses all the days of my life. Some time after this I thought this was not necessary, and of my own accord I used them only when studying. I soon found out that this would not do, and that I must wear them all the time. This doctor also impressed upon my mind the necessity of always seeing the best doctors who were noted for their eyework and understood it thoroughly. In 1888 I went to ——— city to live, and about this time a roaring began in the right ear. I was then doing very heavy study. This roaring was so intense that at times I thought I would lose my mind, and would often run out of doors and away from work, receiving relief by miles of walking."

Physician No. 6.—"Dr. ——— of ——— gave me a thorough overhauling and changed my glasses. He could not account for the noise, but thought it came from my stomach, and he advised

*A patient once told me: "If that doctor had only allowed me to tell him something, I could have saved him from making that mistake, but every time I tried to explain I was shut up with a 'Never mind' or a supercilious smile." The layman wanted to tell the expert that his epileptic fits always came on after excessive use of his eyes, and he was not listened to.

care in eating. He thought that with dieting and wearing the new glasses the noise would leave me in a few months. There was no improvement, and when I returned again he took especial pains about my glasses and examinations. Still the roaring went on."

Physician No. 7.—"I heard then of another noted doctor and oculist in ———, Dr. ———, and I went to him. He gave me a great overhauling, decided that my glasses were correct, but thought I had a nervous trouble which caused the noise. Said he, *'We will try electricity,'* and for weeks he put me in the electric chair, waved a fan around my neck and over the top of my head; then, by myself, I would hold some sort of an electric device on my ear. At last he said: *'We haven't accomplished what we expected, and I have concluded that it is your stomach that ails you. You are large, healthy and fat, and I would advise that you go on a diet, or, better, and what I think and am sure will cure you, is a trip to Europe on a very slow steamer and immediately back on the same vessel.'* Of course, I could not go to Europe, so I kept on walking with my own feet and legs. This was my only relief."

Physician No. 8.—"The noted Dr. ——— of ——— was a friend, and to him I soon went. He said, *'It must be your eyes; go to Dr. ——— or to Dr. ———.'* 'But,' I said, 'I have been to both of them, and they say my glasses are O. K. I think it is my stomach.' He replied: *'Oh, no it isn't. But if they said it is stomach, we won't try further; do as they said, and give the glasses a fair trial and occasionally use caffeine salts.'* This I did and found some help. After awhile back came the roaring worse than ever. Then for awhile I let things go, only kept up walking and walking, miles and miles, which was my only relief, until I would get back in my study, and then the noise began."

Physician No. 9.—"I then moved to the city of ———. Dr. ——— was consulted, who said I had catarrh. He burned both my nostriles out after many weeks' visits to his office. No relief came. The noise and the aching at the back of the head were as bad as ever. Salts and walking every day were my only relief."

Physician No. 10.—"Thinking that it might still be nose trouble, I called on a noted Dr. ——— in ———, who said: *'Yes, you have a growth in your nose, and when it is removed your noise or roaring will cease.'* He used a wire noose and drew forth a large piece of cartilage which I thought had been placed there for the protection of my throat and lungs. I haven't laid eyes on that man since, and do not wish to do so. Application in study brought on the roaring and noise, and therefore my walking was kept up, and Rochelle salts brought some measure of relief."

Physician No. 11.—"Again I hear of a noted man in ——— by the name of Dr. ———. After he had made another and another examination he concluded that there was a dead bone in my head, telling me in great astonishment of what he feared. I said, *'A dead bone back in my nose or throat!'* 'Yes,' said he. He evidently thought me an ignoramus, and I left him with contempt and disgust, and I never want to see this man again. I kept on walking

15 miles every day, and took salts every morning. As usual, there was some relief until applying myself to study or reading or writing."

Physician No. 12.—"By and by I began to imagine that there might be a dead bone in my head after all. I got a month's leave of absence and went to New York city to see the great Dr. ———. He gave me a rigid going over, and finally said: *'You are in perfect condition; nothing is the matter with your ears, nose, or throat. Now let me advise you to stay away from the specialists and give yourself no concern, for I think it is your eyes, from hard application and study. Give them a chance and as much rest as possible, and if your glasses are all right, and you keep yourself from doing too much, I think the noise will subside by and by.'"*

"He was right, but my work compelled application of the eyes, and soon I must go at it again. I kept up the walking and salts, and had learned to like hot baths almost every day with cold spray afterwards. The noise was thus lessened to some extent, but only until I should read or write. Even the daily newspaper would bring back this bane of my life, and I wanted to fly or jump out of the window or take a good big dose of salts, which even at the time of work would relieve me."

Physician No. 13.—"I now moved to ———, and here I mostly kept silent about my ear or head noises, until I was advised by Dr. ——— to go to ——— and see the great Dr. ———, a wonderful operator, as I was told."

Physician No. 14.—"He said he could stop the noise, and I said that is what I want. *'I am sure,'* he added, *'that the operation will do you no harm, and am quite positive the roaring will stop.'* He swabbed my nose with big doses of cocaine—and the operation I shall never forget. He said he had 'carved me' right up to and underneath the base of the brain. I was sure of it, especially from the way he packed me with cotton. I was a sight. Dr. ——— of ——— removed the cotton in a few days. I parted with my $50, and Dr. ——— and I have parted company forever, and I shall never recommend anyone to visit his office.

"The roaring became awful. I then went on long tramps, hunting and boating, using salts, but now without relief. At last the roaring went on both night and day, and I made up my mind that it *must* be caused by my eyes."

Physician No. 15.—"Knowing and hearing of Dr. ——— of ———, I went to him and told him what I had been through. I said it must be my eyes that are at fault. He agreed with me, and proceeded to make the greatest effort of his life to determine the matter. His glasses seemed to help me. They were prescribed after weeks of trial. (He treated me as a friend, without expense.) He worked hard to help me for two years, and at last he said: *'I want you to go to Dr. ——— of ———. I do not know what your trouble is or can be.'"*

Physician No. 16.—"Dr. ——— gave me a most careful examination and concluded it was my stomach that was at fault, and

that it was of so long standing that it had caused an autointoxication, bordering on or approaching some intestinal disease. He would try to help me, but could not promise that the roaring would cease or the fullness of the head subside or the aching stop until he had a full chance. Some simple remedies were all that I needed for the trial. For one year I was under his care. He gave me 1-10 grain of calomel to take when the headache came on (with a dose of Rochelle salts next morning), taking 1-10 grain every hour from 1 in the afternoon till bedtime and Rochelle salts every morning. I was to stop drinking coffee. When tired of Rochelle salts I was to take Sprudel salts; when tired of Sprudel, sal hepatica, and report every two weeks. I was also to walk as usual and take hot baths, with plenty of outdoor work and less indoor work. He then spoke of my eyes, but I told him they could not be at fault, for Dr. ——— had done everything in that way to help me. I often went to see him with the same old story, and he would encourage me to keep right on with the simple remedies, which I did. I was more relieved than ever before. But the treatment became of little avail, although I walked more than any time during the 17 years of ache in the back of the head, ache in the eyeballs, ache behind the eyes. The roaring in the right ear kept me awake nights, and before falling asleep I would put my hand over my ear or my watch between my ear and pillow, as the ticking of the watch was more comforting to me than the dreadful noise in my head. All this was more intense after a few hours in my study and in writing. At last Dr. ——— said: *'I have done all that is necessary to be done for your condition, as it appears to me that of a healthy man having a healthy body. I am now convinced that your eyes are the main and only trouble you have, and I have thought so from the beginning. Now I want you to go and consult the oculist, Dr. ——— of ———, and if he says your glasses are right, then I am nonplussed, but perhaps will give you a trial with other treatment, although I am right, I think.'* Again I referred to the oculist, Dr. ———, who had been most painstaking in his work, etc., and who was my good friend. He replied that he knew he was right and that I must go."

Physician No. 17.—"What is the result? Dr. ——— was right. I have saved shoe leather, for I don't walk so much; I have done more work; no roaring in my ear; I seldom take salts; my bowels are regular every morning of their own accord; since you put the glasses on me I have gained 10 pounds. I am feeling as fine as a fiddle or like a colt. To write out these data for you has taken me all the afternoon, from 1.30 to 6.30, without any of the noise or roaring. I have taken an occasional good smoke with my pipe while writing, or a cigar—the first time I have been able to do such a job in 17 years without wishing to jump out of the window or having to run or walk miles for relief. I am a happy man, and I thank God for your life and that it was my good fortune to fall into your hands. * * * The battle is going my way now and the enemy is being routed. * * * You have removed from my life the

awful conditions which were becoming to me those of despair, for I had no ambition, head aching every day, noise so intense, my stomach out of order, and the only relief was salts, salts, walking miles on miles, etc."

The last letter says: "My glasses have done for my health and comfort more than all the medicines, etc. I have no headache, no indigestion, no noise, I am of a more joyful disposition, I work with a better intelligence, more vim, my nervous system is much improved. I have some difficulty in adapting myself to the bifocals, etc." * * *

The moral draws itself, and the many lessons to be gleaned from this biographic clinic need hardly be epitomized. It is plain, however, that if 30 or 40 years ago, and if at any day in the meantime, the state of medical knowledge and ophthalmic skill had been what it might and what it should have been, this good man might have been relieved of his suffering, as he was, in a day by the adequate correction of his ametropia. Otologists, laryngologists, gastrologists, "ophthalmic surgeons," and general physicians may, if they will, gather some instructive suggestions from the foregoing quotations. We have here another instance of the "walking cure" which did not cure, but which was the only relief of most of the patients whose cases I have described in other *biographic clinics.*

I wish to note a few only of the thoughts as regards refraction that spring up, although they are of relative unimportance to the others:

1. It should be noted that at first there was the strabismus during childhood and youth as the only symptom, although others, unchronicled, might have existed. This strabismus was neglected for six years. Of course, ametropia produced it. Already the lid was ptosic; nature was covering the eye and turning it in to be rid of the bad image which optical science could have made a useful and fusing one. Ophthalmology preferred to give goggles—blue, brown or green, with a hole in the one, etc.—rather than to help nature in her fundamental difficulty. Later, of course, operation was demanded.

2. It is marvelous that nature up to, through, and after the operation preserved this man's perfect acuteness of vision. After a high hyperopic astigmatism has existed up to 13 years, and then is succeeded by a strabismus of six years, the eye is almost always ruined for visual purposes.

3. This obstinate preservation of acuteness of vision was the reason of the man's equally obstinate reflexes, and his rugged health enabled brain, ear, nose, and digestional system to withstand the awful insults of 35 years and still not degenerate into organic disease.

4. Most noteworthy is the fact that as presbyopia was approaching the symptoms and organs affected multiplied, and the intensity of the symptoms increased.

5. The glasses worn by the patient when he came to me did not correct his astigmatism. The prisms incorporated in them under

these circumstances, and the hyperopic correction also, not only could not aid the genius of the eye to overcome her difficulties, but positively increased them. Nature was struggling to get a perfect image on that retina, and as it was impossible, was turning it aside to be rid of it, as she did in the cases of De Quincey, Wagner, and thousands of others. Instead of giving the correct image, the oculist may, as here, prevent the exclusion of the eye from vision (as he also does in all tenotomies for heterophoria and strabismus), or make her work harder to turn the eye again, or force her to extinguish the image in the brain.

6. If this patient had been a woman, or even a man of less energy or rugged health, re-establishment of health after 35 years of suffering would have been only partial, or more probably impossible. Therein lies the fallacy of crying "Exaggeration," "The oculist failed," etc. Before a woman could reach 40 with such a set of reflexes she would perhaps have been over-operated upon for aural or laryngeal disease, and surely she would have had her appendix removed, together, probably, with her uterus, ovaries, etc. Even if not so, she would have drifted into chronic invalidism, sanitarium life, or would have died by those executioners of the functional diseases which we call infectious or organic.

This patient, being a man, luckily escaped the attention of the gynecologists, and also of the gastrotomists and the abdominal surgeons. It is incomprehensible that he should not have gone to the nerve specialists, and it is a genuine miracle that the tenotomists were not consulted. With infinite variations a million of such case-histories are now being made in civilized countries, and the existence of rightly-founded and scientifically-conducted refraction schools is the sole method of preventing their millionfold repetition in the coming generations. So far there is not the hint of the foundation of the first. Even those who should be the most eager and early to advocate such schools are too often happy to cry "Exaggeration, "Hobby-riding," "Specialism gone mad."

Manual of Medicine. By Thomas Kirkpatrick Monro, M.A., M.D. Philadelphia and New York: W. B. Saunders & Co.; London: Bailliere, Tindall & Cox.

Monro's book gives in a very satisfactory, although somewhat condensed form, the salient points in the various diseases usually considered in text-books of medicine, and in addition considers diseases of the skin, which, as a rule, are not included in such text-books. The book is complete, up to date, and extremely well arranged, and cannot fail to be of service to those who desire to look up a subject rapidly, while at the same time it should prove of real benefit to medical students in putting before them clearly and succinctly the important features as regards etiology, symptomatology, diagnosis, prognosis, and treatment of the various diseases and pathological conditions. The book is well printed, and although sparsely illustrated, the few pictures met with therein should be a distinct help to the reader. B.

Current Literature.

REVIEW IN MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

MEMBRANOUS COLITIS.

Hale White (*Lancet,* London, October 28, 1905) discusses in a very thorough and satisfactory manner membranous colitis, basing his conclusions on the study of 60 cases of this disease, the subsequent history of the cases being, as far as possible, followed. White at first calls attention to the number of names which have been used to designate this condition, such as mucous colitis, mucous colic, glairy enteritis, glutinous diarrhea, tubular diarrhea, mucous affection of the intestine, and intestinal croup. He regards the name mucomembranous enterocolitis as the most accurate expression of the pathological condition, but as the membranes are usually made up of mucus, and as the disease is usually limited to the colon, he thinks that the ordinary name for the disease—membranous colitis—is all-sufficient. He calls attention to a number of conditions in which membranes other than those composed of mucus may be passed from the rectum, as the sloughs of typhoid fever, the result of septic inflammation of the colon, and the effect of mercurial poisoning, in most, if not in all, of such cases the membrane being partly composed of necrotic portions of the mucous membrane. It is also doubtful whether all cases in which membranes composed of mucus are passed from the rectum should be dignified by the name membranous colitis, and for that reason it is not usual to include in this category the mucus passed in temporary attacks of constipation or in chronic dysentery. Excluding all these cases, there remains a definite group of cases to which the name membranous colitis may be applied if we bear in mind that by the name colitis we do not bind ourselves to the proposition that there is inflammation of the colon, but regard the name as indicating that in this disease the colon is so affected that the mucus secreted by it is passed from the anus in the form of a membrane. As regards the age of the 60 cases reported by White, they are as follows: Under 10 years, 1 case; between 10 and 20 years, no cases; between 20 and 30 years, 10 cases; between 30 and 40 years, 22 cases; between 40 and 50 years, 17 cases; between 50 and 60 years, 4 cases; between 60 and 70 years, 3 cases; between 70 and 80 years, 2 cases; not stated, 1 case.

Of these 60 cases, 51 were women and 9 were men, thus confirming the general belief that the disease chiefly affects women. The disease is so frequently associated with many forms of neurosis that the view that the cause lies in the nervous system cannot be regarded as unreasonable. This view is also of interest in regard to the greater frequency of the disease among women and among the middle and upper classes. In considering the age in which the disease begins we may safely say that it rarely appears under 20 years of age, usually first shows itself between the ages of 20 and 30, and is only infrequently found to begin beyond 45 years. A consideration of the nine cases in White's series 50 years of age or older when first seen by him shows that if the disease appears late in life it is unusual in some association. Thus one case was probably dependent upon a malady contracted in the West Indies, another case had had many severe (almost fatal) cardiac attacks, in two cases the disease followed the bursting of an abscess into the bowel, while in two cases certainly and in another one probably malignant disease was present. As regards prognosis, 8 of the 60 cases died, but in not one of these cases, with the possible exception of Case 1—the man from the West Indies—could the death be referred to the membranous colitis. As regards the subsequent history of the cases, with the exception of the 8 cases that died from other causes, 43 were traced carefully, and of these 21 got well, 16 did not, while 6 improved considerably. In other words, about 50 per cent. of the cases of this disease get well. All the cases which White includes among his cures were to all intents and purposes quite well at least a year and often much longer after they had first been seen. All the cases which did not recover were among the women, which would suggest that the disease is, as a rule, more severe in women than in men. It also seemed probable from a study of these 60 cases that the longer the duration of the disease the poorer the prognosis.

As regards the symptoms of the disease and the microscopical findings, histologically the membranes are structureless, and imbedded therein we meet with epithelial cells, leucocytes, microorganisms, fragments of feces, pieces of undigested food, and sometimes blood-cells. In almost all cases the patients are constipated, and in some cases the color is very pale. In some cases intestinal sand is frequently passed, but apparently only by patients with a severe type of disease.

In severe instances there is much abdominal pain, either a dull, constant pain or paroxysms of very severe pain, felt chiefly in the center of the abdomen. In many cases both types of pain are met with, while frequently a movement of the bowels relieves the pain markedly. With this pain there is usually more or less tenderness over the course of the colon.

The bowels are nearly always constipated, and even in some of those cases where diarrhea seems to be present the patient really is constipated. In most cases there is coated tongue, flatulence and anorexia, and in severe cases this latter symptom is so marked that the patient becomes extremely emaciated.

In some cases there seems to be an association between the membranous colitis and enteroptosis, but White does not think this occurs so frequently as insisted upon by many other writers. He lays much more stress upon the association between membranous colitis and various disorders of the female generative organs. In his series of 51 female patients, 21 had some disorder of these organs, that is, about 41 per cent. of his series of cases. Another association of interest is that between membranous colitis and appendicitis. These cases fall into two groups—first, those in which appendicitis probably induced the membranous colitis; second, those cases in which the symptoms of appendicitis are not very prominent, and here Hale White believes that the appendicitis is really only the affection of the cecum and the appendix by the same membranous disease which implicates the rest of the large bowel. Obviously in this latter group of cases removal of the appendix will be of no benefit. Another association which all investigators on this subject call attention to, and to which White also agrees, is that between membranous colitis, on the one hand, and neurasthenia, hypochondriasis and hysteria, on the other; in fact, in a large proportion of cases, this association is to be found.

White believes with Nothnagel that "the condition may exist without any structural evidence of enteritis. In that case it is really not an inflammatory process, but one that may be simply termed colica mucosa, or, as Ewald aptly suggests, myxoneurosis." Nothnagel regards the disease as primarily a nervous disorder with an excessive secretion of mucus from the colon as one of its symptoms, his chief arguments in favor of this view being that the disease is especially common in women and is frequently associated with severe and various nervous symptoms. White, however, believes that there are some strong reasons for regarding the disease as a local disorder of the colon, for, firstly, it may undoubtedly be associated with definite organic disease of the bowel, and, secondly, this form of colitis is almost always associated with constipation, and in a few cases appears to directly follow some diarrheal disorder. To sum up, White suggests that we ought to regard the disease as a local disorder of the large intestine, and the many nervous symptoms present may be regarded as secondary to the local condition.

As regards treatment, the most important part is to keep the large bowel empty. The simplest way of accomplishing this is by

aperients, and of these White has obtained the best results with castor oil, administering from half an ounce to an ounce on waking, and keeping it up for a long period of time—weeks or even months. If castor oil is not well borne, he suggests magnesium sulphate in the morning or calomel at night. If all these methods should fail, irrigation of the intestine should be inaugurated. Patients who are able to do so should be advised to take the treatment at Plombières if the preceding methods of treatment have failed. White believes that if all the medical methods of treatment have failed it is worth while to consider the advisability of operation, either a right-sided colotomy or a short-circuiting of the intestine. It must be remembered, however, that in long chronic cases, even after the passage of mucus has ceased, the nervous symptoms may remain. A few cases in White's hands seem to have derived much benefit from the application of high-frequency currents through the abdomen.

As regards diet, White's experience is that ordinary plain, simple food is the best, and the mistake must not be made of giving the patient too little food. He believes that the intestinal antiseptics are worse than useless. In cases with diarrhea he has found castor oil of the most benefit, while in very severe cases absolute rest may be necessary for some period of time. No case should be regarded as incurable until treatment has been continued for months.

* * *

CONGENITAL HEPATOPTOSIS.

Clarke and Dolley (*American Journal of the Medical Sciences*, December, 1905) report a case of congenital hepatoptosis showing a mesohepar. They first call attention to the comparative rarity of hepatoptosis.

First described in 1754 by Heister, the condition has been described in various monographs, as that of Legg with 20 cases, Faure with 54 cases, Graham with 68 cases, Ssaweljew with 117 cases, this last communication appearing in 1903. Clarke and Dolley define hepatoptosis or floating liver as a complete dislocation of the liver from its position under the diaphragm, and they do not include cases of floating lobe in which a portion of the organ remains in its normal position. They find 118 cases of complete hepatoptosis on record.

As to the pathogenesis of the condition, elongation of the ligaments, stretching of the vena cava, and congenital malformation have all been considered as possible causes. As direct causes have been mentioned sex, repeated pregnancies (especially associated with a pendulous abdomen), removal of tumors, tapping of ascites,

trauma, overstrain, and tight lacing. In Ssaweljew's series of 117 cases, 13 were males, 103 females, and 1 a child, while of the women 93 were married, 10 single. Much discussion in the solution of the question of the etiology of hepatoptosis has arisen in regard to the mesohepar. Thus Meissner strongly advocated the apposition of the two peritoneal reflections from the liver to the diaphragm, together with their lengthening, as a chief factor of the condition, but Landau, Faure, and most later writers have denied the occurrence of such a structure.

The case Clarke and Dolley report was of an unmarried woman, 34 years old, admitted to hospital for pain and swelling in the right knee and ankle. The mother had died of liver trouble and sister of dropsy following rheumatism. In the past history of the patient the only thing of moment was that she had been a sufferer from chronic constipation; there had been no history of accident or fall, and she did not wear tight corsets. Nine years previously she first noticed a tumor in the right side of her abdomen, which subsequently seemed to increase a little in size and to cause some dragging pain. Three years before admission an exploratory laparotomy had been performed, but the surgeon, after diagnosing sarcoma of the liver, had closed the abdomen. Physical examination of the patient showed the typical picture of a floating liver, bulging in the right flank, the movement of the mass on respiration, the characteristic feel of the tumor, with its sharp edge and its notch, its easy movability, its flatness to percussion, and the direct transition from pulmonary resonance to intestinal tympany on percussing the right side of the chest. Both kidneys were palpable, but with this exception the physical examination was of no special moment. The patient died of an acute attack of appendicitis.

The especially interesting feature in the clinical history of the case was the total absence of the usual etiological factors—pregnancy, accident, hard work, and lax abdominal walls. The autopsy findings demonstrated that the case was one of congenital hepatoptosis with a mesohepar 13 mm. in length. The pathological diagnosis of the condition was as follows:

Congenital malformation and displacement of the liver; multiple gummata of the liver, with syphilitic cirrhosis; chronic passive congestion of the portal system; operative removal of the appendix; acute general peritonitis; dilatation of the stomach, with atrophic gastritis; acute ulcerative typhlitis; chronic enterocolitis; syphilitic endarteritis and periarteritis of the large intestine; hypertrophy of the thyroid; tuberculosis of the tracheal glands.

The conclusions of the very interesting article by Clarke and Dolley are as follows:

1. The abnormal position of the liver, with its limited mobility,

its atypical shape, the absence of the coronary and right lateral ligaments, the abnormal origin of the left lateral ligament, which assumes the function of the coronary ligament, and of the suspensory and round ligaments, the shifting of the fissure of the vena cava from one lobe to the other, though the course of the vessel is normal, together with other variations, leave no doubt as to the embryonic origin of the condition. Syphilis was merely a coincidence.

2. As the review of the literature, particularly of the references given in the *Anatomischer Anzeiger* for the past 15 years and of the collections of Jacquemot and Faure, shows no identical case, and but one slightly resembling the present one, it must be considered as unique.

3. The case, though it does not prove that a mesohepar is the cause of hepatoptosis, does prove Meissner's hypothesis that such a condition may exist.

* * *

MUSCLE FATIGUE.

Lee (*Journal of the American Medical Association,* December 9, 1905) contributes a short but very interesting article on the fatigue of cold-blooded compared with that of warm-blooded muscles. As he rightly says, most of our knowledge of the physiology of muscles has been obtained from the study of cold-blooded animals, and in considering the physiology of muscle in warm-blooded animals he raises the question whether the different physical conditions produce different physiological characteristics. Lee studied carefully the muscles of the frog and the turtle, subjecting them to two temperatures, one of 12° C., the other slightly lower than human-body temperature. He found that in these cases there was no fundamental difference as regards the changes in their curve of contraction due to fatigue. Of warm-blooded animals the cat, rabbit, white rat, white mouse, guinea-pig, and woodchuck were studied. From these experiments upon warm-blooded and cold-blooded animals Lee believes that he is justified in drawing the following conclusions:

1. There is a physiologic difference between cold-blooded and warm-blooded animals in the mode of fatigue of their excised voluntary muscles.

2. One of the characteristic phenomena of fatigue of the excised voluntary muscles of cold-blooded animals is a pronounced slowing of the whole contraction process, manifested by a lengthening of the muscle curve. This is most pronounced at low temperatures. It is diminished, but not obliterated at high temperatures.

3. The excised voluntary muscles of most warm-blooded animals fatigue without a slowing of the contraction process as a whole. At low temperatures there is observable a broadening of the muscle curve, caused by fatigue, which in individual cases may result in a minute lengthening of the curve as a whole.

4. The above facts suggest that the general physiological differences between the muscles of cold-blooded and of warm-blooded animals are not due to immediate differences of temperature. The existence of a homothermal condition and the constant subjection of the skeletal muscle system to a uniform temperature seem to impress on that system distinctive physiologic peculiarities.

* * *

THE USE OF TUBERCULIN AS A CURATIVE MEASURE.

Grünbaum (*Lancet,* London, September 24, 1904) makes a plea for the more extensive use of tuberculin as a prophylactic and curative measure. As is well known, this method has fallen into disrepute in this country and in England, but is still made use of by a number of physicians in the German-speaking countries, and is still warmly advocated by Koch himself. Grünbaum believes that the reason for its not being used in England is entirely a concession to popular prejudice, and he has found that most superintendents of tuberculous sanatoria in that country have had no experience with this method of treatment. He believes also that clinical results more than justify its use, and that it does stimulate the production of protective bodies against the tubercle bacillus. To quote Grünbaum, "the injection of tuberculin is not really contraindicated by the pre-existence of infection, for at the site occupied by the tubercle bacilli in a progressing case the cells obviously are too weak to resist the invader. But the other cells of the body have no opportunity of producing protective substances in the absence of a suitable stimulus, and the tubercle bacillus, with its products, does not come to them. It is the tuberculin which supplies this stimulus."

Grünbaum has used the Neu-tuberculin (bacilli emulsion) of Koch since its introduction, always avoiding doses sufficiently large to produce a violent reaction. At first the patient is kept in hospital, but when the dose has reached Grünbaum's maximum, .75 c. cm., the patient gets the injection in the out-patient department, although he is advised to rest the day following. One injection is given every week, as a rule, but the injection is never repeated until the patient has entirely recovered from the effects of the preceding treatment. As a rule, the injections are continued for a period of from three to six months.

According to Grünbaum, none of the non-specific forms of treatment produce results as good as those obtained by the use of tuberculin in cases of the same stage of the disease. He believes, however, that the best results are to be obtained by a combination of the tuberculin and sanatorium treatments as first insisted upon by Petruschky. He also strongly advises the use of tuberculin as a prophylactic, especially in cases of obvious tuberculous diathesis.

The results obtained by the various users of the new tuberculin are interesting, and it would seem worth while to attempt its use in a few cases in the hands of absolutely non-partisan observers.

PROCEEDINGS

OF THE

MEDICAL AND CHIRURGICAL FACULTY

OF MARYLAND

Editorial and Publishing Committee.

ALEXIUS MCGLANNAN, M.D. HENRY O. REIK, M.D. JOHN RUHRAH, M.D.

Secretaries of the County Societies are earnestly requested to send reports of meetings and all items of personal mention and of local or general interest for publication addressed to Dr. Alexius McGlannan, 847 North Eutaw Street, Baltimore.

NOTICE.

THE annual meeting of the State Faculty will be held on the 24th, 25th and 26th of April. An interesting program is being arranged which will include not only a number of scientific papers, but a trip to quarantine on the afternoon of the 25th.

Dr. Jacobi of New York will be the orator, and will deliver his address on Wednesday evening in connection with the pure-milk crusade, which is being conducted by the State Board of Health.

On Thursday afternoon Dr. L. F. Barker will deliver an address at McCoy Hall, which will be followed by a lantern demonstration by Dr. W. T. Watson on the part played by insects in the transmission of disease, and Dr. J. S. Fulton will talk about the milk supply of foreign countries, illustrated. Thursday evening the banquet will be held.

Dr. Earle will hold open house for the members Wednesday and Thursday.

Members desiring to present papers must send title to the chairman of the committee before April 10.

Committee on scientific work and arrangements:

Arthur P. Herring, chairman;
Jefferies Buck,
John Ruhräh.

THE approaching annual meeting of the State Faculty will be an opportunity for the advancement of all interests. Everyone should attend as many sessions as his time will permit. County members especially should make great exertions to attend. Delegates are bound by their positions to attend the meetings of the House, and only the most urgent private business should be allowed to prevent attendance at all sessions.

This meeting will offer an excellent opportunity for informal consideration of the value of organization and of methods for increase in effectiveness of our component societies. Each county society has had some individual experience, the discussion of which will assist some other county in a similar emergency.

The social functions incident to the meeting will allow us to become more generally personally acquainted, and the exchange of information which always results from this sort of intercourse will surely help the progress of the cause. There are many rough places in the road to perfect organization that cannot be smoothed out by routine methods. Much varied information, often apparently too trivial to be brought out in a formal discussion, but of direct importance in some particular case, will be circulated on these occasions, and in the informality of the social discussion will become available for the extension of the influence and usefulness of the organization.

ACID TREATMENT OF EXOPHTHALMIC GOITER

By William E. Magruder, M.D.,

Sandy Spring, Md.

READ BEFORE THE MONTGOMERY COUNTY MEDICAL SOCIETY, AT THE ANNUAL MEETING, APRIL, 1905.

EXOPHTHALMIC GOITER was well described by Caleb Hillier Parry in 1825 when writing of a case seen by him in 1786 and quoted by Osler in his "Practice of Medicine." In reporting the exophthalmos he said: "The eyes were protruded from their sockets, and the countenance exhibited an appearance of agitation and distress, especially in any muscular movement."

The disease is, however, usually called after Graves, who described it in 1835, or Basedow, who wrote of it in 1840.

Dr. Flint in his "Practice of Medicine," 1867, says: "When my book on diseases of the heart was published, in 1859, I had met but one case. During the past five years, in a large clinical field, only four have come under my observation." In the more than 50 years during which I have been engaged in practice but two cases have come under my care, so the disease is comparatively rare, or perhaps mild cases slip by without diagnosis.

Dr. Tyson defines the condition as being characterized "by

enlargement of the thyroid gland, protrusion of the eyeballs, and frequent pulse."

For information concerning the etiology and symptoms I will refer you to the recent textbooks and confine this paper to a report of cases.

Case 1. Occurred in 1884; reported in the *Medical News* 1888. Miss B., dressmaker, age 22, good family history and previously healthy, when first seen presented the following symptoms: Enlarged, pulsating thyroid gland, palpitation of the heart, frequent pulse (120 to 140), becoming more rapid upon exertion or excitement, and marked protrusion of the eyeballs, giving a staring expression. Lack of co-ordination between the upper lids and the eyeballs was noticed, the former not following the latter when turned downward. Anemia was marked, and patient was intensely nervous. Sensations of heat, especially in feet, were complained of, but temperature was only slightly elevated.

In treating the case the various remedies recommended in the books were tried, including digitalis, iron, quinine, aconite, strychnine, ergot, and belladonna, both separately and in various combinations; electricity, both galvanic and faradic, with little, if any, appreciable effect.

While looking up the subject in search of something to help my patient I was truck with the statement of Handfield Jones in his treatise on "Nervous Diseases:" "Sulphuric and nitric acids have certainly some claim to be toners of the vasomotor nerves. They cannot be supposed to act in their original form on the parts they influence, as their quality must be lost the moment they enter the circulation. They cannot be mere astringents like tannin. When sulphuric acid restrains a choleraic purging or colliquative sweating these effects must surely be produced through the nerves that regulate the arteries of the internal and external integument."

Something to give tone to the vasomotor nerves seemed to me to be especially indicated in Graves' disease, and, as the other remedies had failed, I determined to try sulphuric acid.

At first the acid was administered in the form of the aromatic sulphuric combined with ergot and digitalis. Very soon there was decided improvement in the condition, the pulse becoming less frequent, the thyroid less enlarged, its pulsations less noticeable, and diminution of the exophthalmos became apparent.

This mixture, however, soon upset the stomach, and the patient was put on 20-drop doses of aromatic sulphuric acid alone. The improvement continued until recovery, but there was for a year or more tendency to recurrence of the symptoms upon overexertion or undue excitement. These symptoms yielded immediately to a few days' treatment with the acid. So great was the relief afforded that the patient was in the habit of resuming treatment herself upon observing any signs of recurrence. Recovery was complete, and after more than 20 years the woman is still free from any evidences of the disease.

Case 2. Seamstress, age 60. I was called to see this woman

because members of her family had observed the peculiar appearance of her eyes, and believing she was going blind, desired advice about sending her to an oculist. Upon examination the eyeballs were found to be protruding markedly, the thyroid enlarged and pulsating, and the pulse much accelerated.

She was given 20 drops of aromatic sulphuric acid and three drops of tincture of strophanthus every four hours with marked benefit. Improvement continued until she went away for a visit to her sons and her supply of medicine was exhausted, when the symptoms became greatly exaggerated and continued until treatment was renewed.

Except when some imprudence, such as a long walk or unusual excitement, caused temporary exacerbations, she was free from symptoms, and died many years later from pneumonia.

The effects following the administration of sulphuric acid in these cases would seem to indicate that it may prove a valuable remedy in this obscure and obstinate disease. I regret having given the strophanthus in the second case, as it is impossible to say what part it played in the recovery of the patient and how far the acid treatment was responsible.

No other cases have come under my personal observation, but my son, Dr. W. Edward Magruder, while associated with one of the nose, throat, and chest clinics in Baltimore in 1895 to 1897, had an opportunity of using the acid in three cases.

The first two were women about 40 years old, and presented marked protrusion of eyeballs, tachycardia, and thyroid enlargement. They were given 10 drops of aromatic sulphuric acid with two drops of tincture of strophanthus at a dose, and enjoyed prompt relief of their symptoms. They were able to resume their occupations, one that of charwoman, the other a laundress, and returned from time to time for more medicine until, changing to another service in the dispensary, my son lost sight of them.

His third case was that of a dressmaker who had come to Baltimore from Martinsburg, W. Va., and consulted him about her palpitation and dyspnea, which had existed for several months. Her eyes were not suggestive, but the thyroid gland was markedly enlarged. Acid and strophanthus were prescribed, and also some phosphate of soda for existing constipation and intestinal indigestion. After about a month she felt well enough to go home and open business for herself, and was referred to her own physician with a letter and copy of the prescription.

Osler says "the course of the disease is usually chronic, lasting several years." Flint remarks that it is "rarely in itself a fatal affection, but by impairing the power of resisting other diseases it may contribute to their fatality." He also says it continues indefinitely, and the proportion of cases of complete recovery is small. It would appear, then, that any treatment which will afford such marked relief as in the cases cited would be worth trying in others, and for this reason I have thought it worth while to report them.

Dr. James Dudley Morgan of Washington was present when

this paper was read, and stated that he would try the acid treatment in his clinic.

The following letter was recently received from Dr. Dwight Gordon Smith, assistant physician to the Emergency Hospital:

"At the suggestion of Dr. Morgan I began using sulphuric acid in the treatment of exophthalmic goiter in his service at the Emergency Hospital. We have treated five cases during the past three months. Of these two have improved greatly, two are practically well, all symptoms having subsided, and one has ceased coming to the dispensary, but is reported as much improved."

SUBPHRENIC ABSCESS.

By A. C. Harrison, M.D.

READ BEFORE THE SECTION ON CLINICAL MEDICINE AND SURGERY OF THE BALTIMORE CITY MEDICAL SOCIETY, DECEMBER 1, 1905.

NO ATTEMPT will be made to present a complete history of this condition nor to give a bibliography of the literature consulted. (See Maydle's monograph, 1894, and Elsberg's in *Annals of Surgery,* 1901, Vol. XXXIV, in each of which is given a complete bibliography to date of publication. Since 1901 a number of articles have appeared, notably one by Henry A. Christian and L. C. Lehr, *Medical News,* 1903, Vol. LXXXII, and one in November issue of *Annals of Surgery* by J. C. Munro.)

The history practically begins with the classical publication of Leyden in 1880, which article created wide interest in the subject, and was followed in 1896 by the publication by Maydle of his masterly monograph, in which he presents a complete consideration of nearly every phase of the subject and pretty much the last word up to the date of publication. In 1901 Elsberg published his splendid consideration of the subject from the standpoint of appendicitis as a causative influence.

Numbers of other articles are to be found in the recent literature, some of them good in quality and more or less extensive, but they all draw their substance from one or the other of these three, with now and then the addition of one or more new cases. These are the classics and cover nearly all there is of worth upon the subject.

Though the condition was rarely recognized prior to 1880, Maydle refers to a case reported by G. H. Barlow in 1845, in which report he says the symptoms were admirably set forth, a definite diagnosis made before death, and a large abscess demonstrated post-mortem.

This condition has been described under several names, the more common being subdiaphragmatic and subphrenic abscess, and subphrenic pyopneumathorax. This latter name was applied by Leyden to those abscesses containing pus and gas because of the marked similarity of their physical signs to those of true pyopneumathorax.

The designation subphrenic abscess should be applied to localized areas of peritonitis, situated in the subdiaphragmatic region, which eventuate into circumscribed collections of pus, which may be either intraperitoneal or extraperitoneal.

This term should be reserved, I think, for those conditions which are of sufficient moment to present distinctive features, and not applied to those smaller collections of pus in the subphrenic region, which are merely minor parts of a general suppurative peritonitis. This stretching of the term seems to have been used in at least some of the cases reported by Christian and Lehr and quoted by Kelly and Hardon in their treatise on appendicitis.

These collections are confined to the space bounded above everywhere by the diaphragm—below and to the right, the right lobe of the liver, hepatic flexure, and transverse colon; in front, the anterior abdominal wall. To the left will be found, below the left lobe of the liver, the right end of the stomach and first portion of the duodenum; further to the left, the body and fundus of the stomach and spleen; in front, the anterior abdominal wall. Dividing this space into two portions, right and left, is the ligamentum suspensorium. This barrier is usually complete and rarely traversed by collections on one or the other sides, though it may become eroded as a late condition, allowing the collection to flow over. Of course, it is perfectly possible for both sides to become infected at the same time, giving rise to two distinct abscesses. Posteriorly the peritoneum partially encloses the ascending and descending colon, passes up in front of the kidneys on to the diaphragm, and thence to the liver. Here we see that pus collections about either colon or either kidney may easily travel by direct extension into the subphrenic area.

As for the possible sources of infection, these seem to be almost unlimited. Any infected area which may establish communication, either direct or indirect, with the abdominal contents may, and it seems sometimes does, result in infection of the subphrenic region. Certain foci, however, are by far the more common sources. Maydle gives the following classification as the primary foci of origin in his collection of 179 cases:

Stomach and duodenum	35	cases.
Intestine	13	"
Pericecal	25	"
Gall ducts	20	"
Echinococcus cysts	17	"
Subcutaneous trauma	18	"
Perinephritic abscess	11	"
Metastatic abscess	11	"
Open wounds	6	"
Thoracic	9	"
Caries of ribs	3	"
Various (unnamed)	11	"

Dr. Osler gives 80 per cent. as due to gastric ulcer and 6 per cent. due to duodenal ulcer.

The leading cause, it will be seen, is perforation of the stomach and duodenum. Though perforation of these organs is a fairly common occurrence, it would seem that this source should grow less, since it is now probable that most at least of these perforations come to early operation. Appendicitis is easily next in frequency. It seems that only in the past decade has appendicitis begun to be properly appreciated as a causative agent, and now it bids fair to outstrip any of the other sources. Certainly, the proportion accredited to this cause has largely increased in the past few years.

In Maydle's 179 cases 23 were due to appendicitis. According to Elsberg, Lang found 26 among 176 cases of right-sided subphrenic disease due to appendix. Sannanburg observed nine subphrenic abscesses in 600 cases of appendicitis. In 350 of these 600 cases there was an abscess around the appendix, and nine (2½ per cent.) of these abscesses had secondary right-sided subphrenic abscess. In 4028 autopsy reports Christian and Lehr found 86 cases in which the cause of death was due, directly or indirectly, to appendicitis. In seven (8.13 per cent.) involvement of the subphrenic region was found. One is hardly justified in classing some of these cases as subphrenic abscess, however, as the reports seem to show that the purulent process found here was merely a part of a general suppurative peritonitis.

The infection may reach the subphrenic region, first, by direct extension, as in post-cecal and perinephritic abscesses; second, by extension through the blood current or the lymphatic channels, the latter being probably the more frequent route from distant points, as in appendicitis and pelvic suppurations.

The lung and pleura may become involved either by lung infarct or by direct extension, through erosions of the diaphragm, or through the lymphatic communications between the thoracic and abdominal cavities.

The size of these abscesses is very variable, as is also the character of their contents. The quantity is apt to be large and its character extremely fetid. About 15 per cent. contain gas. The gaseous contents may originate from communication with some of the hollow viscera, as the stomach and duodenum, or it may be generated by the organisms present (bacillus aerogenes capsulatus or some one of the bacillus coli communis group).

Perforation of the diaphragm occurred in 25 per cent. of Elsberg's cases. It is not necessary, however, for perforation of the diaphragm to occur to cause involvement of the pleura or lung. Infection may travel from the subphrenic space to the lung or pleura, or the converse may occur without discoverable breach in the diaphragm.

Manifestly it would not be well to attempt to consider here every detail of more or less diagnostic value even did time permit. The

diagnosis is rarely easy, and in the early periods is usually surrounded by many difficulties.

The symptoms of subphrenic abscess make more or less continuous history with that of the lesions from which they take their origin. In the beginning there will usually be severe pain and signs of peritonitis in the upper abdomen, and finally the physical signs of the abscess itself, more or less pronounced. The pain is usually localized, and not apt to radiate, though it may do so at times. Not long after the onset of pain examination of the liver region will reveal changes from the normal. There may be fine friction sounds in this region, or more or less extensive dullness on percussion over the area of relative liver dullness or over the lower ribs posteriorly. If watched from day to day, the dullness may be found to be extending, and soon exceeds the area belonging to the normal liver. The lower limits of the liver may now be found to reach one or two inches below the costal girdle. At the same time the breath sounds are but little changed unless the pleura has become involved. When the abscess contains gas the translation of the physical signs becomes less difficult because of the obliteration of liver dullness, and in its place full tympanitic resonance and possibly succussion sounds. These signs will usually be stationary and limited to the lower thoracic region.

When there is no gas in the abscess one has to consider three possible conditions—effusion beneath the diaphragm, or into the pleural cavity alone, or both simultaneously. The latter condition must necessarily be very perplexing. With a beginning pleural effusion the predominating symptoms are those of an affection of the respiratory apparatus. The upper level of pleural effusions is usually concave upwards and changes with position. With well-marked effusion beneath the diaphragm there are usually few or no thoracic symptoms. The upper level of dullness is a straight line or convex upward, with little or no change with change of position. Depression of the liver is usual in subphrenic abscess and rare in pleural effusions, except in extreme cases. In the combined effusions one must depend upon two factors—if the subphrenic area contains gas, this fact will differentiate it from the fluid above; if the two fluids differ in character, aspiration will determine two sources. Litten's sign is probably of but little value here, and the same may be said of Furbringer's dictum concerning the movement of the aspirating needle.

The differential diagnosis between subphrenic and liver abscess is arrived at with extreme difficulty, and indeed must often be impossible before operation. In both affections the liver dullness is increased upward and downward, and limited above by the diaphragm. The clinical symptoms, too, may be identical in each condition. A close study of the history and the character of the aspirated fluids are the only features of any practical value.

The lesions most commonly leading to liver abscess are not those most commonly leading to subphrenic abscess. The fluid from liver abscess is most often of a light chocolate color, sterile, and not offensive. The contrary is true of subphrenic abscess.

Elsberg says: "While the presence of one or more of the usual symptoms may be of much value for diagnostic purposes, the absence of any one or all of them does not preclude the existence of subphrenic abscess." The condition is frequently unrecognized until autopsy, and the diagnosis is rarely easy until the process is well advanced. Early diagnosis will depend principally upon knowledge of the source of infection and an acute insight into the processes by which infection reaches the subphrenic space, while at a later stage we may expect to find more or less of the classical symptoms. History and physical signs lead us to suspect the condition, leaving exploratory puncture to demonstrate it.

The *x*-ray is said to be of value in showing the position of the diaphragm and location of abscess.

Prognosis.—Maydle gave the results in his collection as follows: Mortality after operation 35.7 per cent., and total mortality 56 per cent.

Elsberg's collection shows the following: Died with operation, 11 cases, or 15 per cent.; died without operation, 18 cases, or 25 per cent.—total mortality, 40 per cent.; cured with operation, 40 cases, or 55 per cent.; cured without operation, 4 cases, or 5 per cent. Therefore of 51 cases operated on 11 died, a mortality of 22 per cent., and of 22 cases not operated on 18 died, a mortality of 82 per cent.

In three of the four cases that recovered without operation the abscess perforated into and discharged through a bronchus. In the fourth case the subphrenic abscess finally opened into and discharged through an original appendix-abscess cavity.

Treatment.—The treatment of these abscesses, of course, is incision and drainage, and this should be done as easly as the pus cavity can be located. So soon as the general and local symptoms are reasonably definite the suspected area should be attacked with the exploring needle, but one should be prepared to finish the operation at once in case the pus be located.

The technique of the procedure may vary according to circumstances. In those cases which point below the costal arch or in the lumbar region the incision may be made directly over the swelling. In other cases the resection of one or more ribs is usually required. As to where the approach shall begin, this, of course, will depend upon where the pus is located. If possible the diaphragm should be approached below the pleural fold, but manifestly this cannot always be done. If the costophrenic spaces have not been obliterated by adhesions, and one must pass through the pleural space, an effort may be made to stitch the pleural surfaces so as to shut off the general cavity. Should this fail one must depend upon packing. Where the pleural cavity is already in-

volved by the suppurative process, as is not infrequently the case, both cavities may be drained through the same opening.

In conclusion, I wish to report very briefly two cases, one of which is unique in its source in so far as I can find, and did present a typical subphrenic pyapneumathorax. The second case may justly be considered doubtful, but seems fairly definite.

Case 1. J. L., negro oysterman, aged 28 years, whose previous condition presented nothing important save the following: Admitted to City Hospital March 28, 1905. Several weeks before the umbilicus became ulcerated and very painful. On admission he showed collections of pus in upper part of the sheath of right rectus and beneath lower part of left external oblique, the latter discharging through a small incision in the left inguinal region and the former through the umbilicus. The areas were laid open freely and gauze and tubular drainage established. Two weeks later he had a rise of pulse and temperature, and showed evidence of pelvic involvement. At the second operation it was found that the infection had followed the urachus and hypogastric and involved the cellular tissues around the bladder.

April 18 subphrenic abscess found and opened, with discharge of large quantity of pus and gas; died April 20.

Here we have a primary infection through umbilicus traveling along the muscle layers, then following the cords from umbilicus to bladder region, and finally up the round ligament to the subphrenic space.

Case 2. M. J., aged 12 years; admitted to City Hospital May 1, 1905, with history of acute illness for one week. Examination showed large mass beneath outer border of right rectus at liver margin; incision over tumor; no adhesion between parietal and visceral peritoneum. There was no ascending colon, the ileum making its junction with colon just beneath liver at the anterior notch. Raising the liver and pulling down the cecum opened into a foul abscess containing the necrotic appendix.

Paient did well for 12 days, when he developed a right-sided pneumonia, which terminated in lung abscess a week or 10 days later, as evidenced by the free spitting of pus, which was overwhelmingly fetid. Aspiration on fourth day of his pneumonia showed no empyema. The abdominal condition was normal save the sinus leading to the original abscess cavity.

About June 1 it was decided that he probably had a subphrenic abscess in addition to the lung condition, which had improved in so far as the expectoration was much less and not so fetid. He was extremely septic and his general condition most grave. He was anesthetized and an attempt made to locate the pus with a good-sized and long needle. Nine punctures over lower right lung and over liver area failed to locate pus; hence no further operation.

Three days later there was a free flow of fetid pus from the abdominal sinus, which to all appearances came from above the liver. From this day he improved rapidly, and was entirely well by July 10, 1905.

Society Reports.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD JANUARY 24, 1906.

The Toxins and Antitoxins of Poisonous Mushrooms—Dr. W. W. Ford. The use of mushrooms as a food was known to the ancient Babylonians, and other nations made use of this plant not only as a delicacy, but as the main constituent of meals. The most prized one takes its name from one of the early Roman emperors. The poisonous forms were known and used to kill enemies.

The mushroom has a wide use in European countries—Italy, France, Polan, Russia—and also in China. That its use has not become so general in America is due to a general suspicion of the plant and to its scarcity. Its greatest use in this country is as a condiment.

In the ancient times almost as soon as the mushroom began to come into use cases of fatal poisoning occurred. Up to the last century it was not known to what principle this poisoning was due. Though the actual number of cases is hard to determine, many important persons have lost their lives from eating this plant. The best statistics are from France, where 100 cases were collected in a short time. In another part of the same country 60 cases were reported in a short period. In Japan during eight years 400 cases were recorded, while from Germany comes a report of 53 cases, with 44 deaths. In Italy it is a common cause of death. Near Baltimore two cases were reported last summer, neither of which was fatal. Of late there have been a number of scattered cases throughout North America. The number of cases is sufficient to make the study an interesting one and an antitoxin of use.

The nature of the poison involved is important. The French claim all forms of mushrooms are good if fresh; the Germans claim all are poisonous. Schmiedeberg isolated muscarine from the form muscaria, and later prepared this substance synthetically. Its action is on the nerve centers and its antidote is atropine. *A. muscaria*, the ordinary toadstool, is the source of practically all the muscarine in nature.

The most important cause of poisoning with toadstools is *A. phalloides*, which differs from *A. muscaria* in being taller, with a broader top. It is abundant in the woods, and grows not only in the shade, but in the sunlight as well. *A. phalloides* is of astonishing toxicity, one-third of the top of a small plant having killed a child. *A. verna* is likewise very toxic, being called the "destroying angel" or deadly amnita.

A 1900 French thesis gives a long list of poisonings by *A. phalloides*, while in German literature 200 cases of poisoning from *A. muscaria* are recorded, though no note is made of the amount eaten. *A. phalloides* is the most poisonous, and *A. muscaria* generally results in slow recovery.

The symptoms of poisoning with *A. phalloides* are very definite, and marked pathological changes are found post-mortem. In a case where the

mushroom was eaten at 6 o'clock in the evening, at 12 midnight the patient complained of severe pain in the abdomen and head, and of intense thirst. There was excessive vomiting, cyanosis, short stertorous breathing, and glazed pupils. Delirium developed, passing on into coma and death, this occurring on the eighth day with typical Hippocratic facies.

Seven post-mortem examinations showed lack of post-mortem rigidity, widely-dilated pupils, ecchymoses in the mucous membranes, and lack of coagulation of the blood. There is fatty degeneration of the liver, kidneys, heart muscle, as in phosphorus poisoning, this occurring to the extent of 53 to 68 per cent. in mushroom poisoning and to 70 per cent. from phosphorus. Kobert in 1891, and later in 1897, was the first to give definite information as to the poisonous substance, and to him we owe our present knowledge. The active principle phallarin is a tox-albumen, and possesses a specific action upon the red-blood corpuscles, being strongly hemolytic.

There was some reference to a serum in France in 1897 that was antitoxic in its action, but no trace of this has been discovered.

A. phalloides grows abundantly in Maryland, Pennsylvania, and in North Carolina, and possesses a very typical odor and appearance, especially when fresh. Its taste is delicious, and this fact leads to the mistakes made in its use. In the preparation of the active principle it is best to extract the fresh plants with distilled water in an ice box for 24 hours. On pressure this yields a dark-brown fluid, possessing the characteristic odor. This is filtered first through paper and the Burckfeldt filter. On concentrating to dryness a sticky residue is obtained, impossible to use or to estimate its strength. It is therefore better to use a certain weight of the fungus and a known unit of water. This substance is a powerful hemolytic agent, a 1 per cent. solution dissolving the red-blood corpuscles of many animals and man. This action occurs best at 38°, more slowly at the room temperature, the corpuscles of the guinea-pig being less resistant, those of man and the dog being more so. This dissolving action takes place with very dilute solutions, 1-100 c. c. sufficing for 1 c. c. of rabbit's blood, laking and dissolving the corpuscles completely.

The hemolysins are of two classes—normal serum hemolysins and immune serum hemolysins. Two substances are required, the amboceptor and the complement, neither of which can act alone. On the other hand, different hemolysins are produced by the bacteria, which may act without any complement. Phallarin unites directly with susceptible red corpuscles, and if the temperature be raised a trifle hemolysis occurs without the aid of a complement. It is capable of dissolving the corpuscles in the presence of no other substance.

Heating phallarin to 58° causes no diminution in its powers, and only at 65° does it begin to lose its hemolytic action, 70° being necessary to render it inactive for certain susceptible forms of cells. If it be inactivated at 70°, it was thought some substance might be found that would act as a complement. Various sera were tried in many ways, but no such complemental substance exists apparently. Phallarin acts therefore directly upon the red-blood corpuscles, and, like the bacterial hemolysins, requires no complement.

Inoculated into animals the crude extract is very toxic. One cubic centimeter will kill 2000 grams of rabbit in eight hours. The animals become very weak and lie on their sides with deep, difficult respiratory movements,

which continue to grow less frequent. The heart continues to beat after the respiratory movements cease. There are no convulsions as always occur after the administration of muscarine. Inoculations under the skin produce subcutaneous edema and small hemorrhages. There is no post-mortem stiffness, the bladder is filled with urine, the heart is in diastole, with marked bulging of the ventricles, and there are occasionally small hemorrhages in the pericardium. The stomach may show small ulcers of the mucous membrane and contain blood. With small doses degenerative changes occur in the organs.

Graduated doses will determine the toxic dose. The given dose will always kill a given weight of animal in a given time. The ratio between the hemolytic power and the toxicity varies only within very narrow limits.

With gradual increasing doses it is possible, by using much smaller doses than are toxic, and extending the inoculations over a long period of time, to immunize an animal to withstand the inoculation of a rapidly fatal dose even up to several multiples of that dose. The serum at this point is antihemolytic, and stops that process if used in even dilute solutions. This serum also possesses antitoxic properties, and will, if administered to another rabbit, neutralize completely a large amount of phallin, so that no poisoning is obtained, not even the subcutaneous edema. Smaller doses of the antitoxin will allow only some of the characteristic features to appear.

We have eventually succeeded in immunizing rabbits to withstand very large doses of phallin. Six to seven times the fatal dose have been administered and the rabbit saved by the antitoxin. Ten times the fatal dose to be neutralized is the standard. Hence phallin is allied to the bacterial hemolysins, and is not only hemolytic, but toxic, and we can accustom small animals to withstand large doses and produce an antitoxin.

It is an open question as to whether this antitoxin will be of any practical use to man. Most cases of mushroom poisoning are due to phallin, and the mortality is high. The diagnosis is easy if a physician is called at once. A considerable period—six to eight days in adults and three to five days in children—intervenes before the fatal period; so the application of an antitoxin would appear of theoretical value.

The "Home-Sanatorium" Treatment of Pulmonary Tuberculosis—Dr. J. H. Pratt, Boston. There are two kinds of tuberculosis—that of the rich and that of the poor. It has been said the former is cured sometimes, the latter never. However, admirable results have been obtained here and there in the slums.

As emphasized by Osler, home treatment is very necessary—a careful regulation of the daily life, light, and open air. An outdoor life, if adopted, will in some cases cure. Even in New England's unfavorable climate tuberculosis can be successfully treated. Millet was an early advocate of out-of-door sleeping at night.

Of importance is the regulation of the daily life, and this discipline has brought good results, as shown by Miner of Asheville, N. C. We have tried this among the poor in the city of Boston.

In the past the unfavorable results of home and dispensary treatment have arisen from the lack of discipline. The tuberculosis dispensary is a factor in the prevention of the spread of the disease, but cures few, if any, cases. The difference between the methods of the dispensary and our home treat-

ment is the dispensary gives a small amount of care to a large number of patients, while we give a large amount of care to a small number of patients.

Every detail of the daily life is supervised. The nurse or friendly visitor is a wise councillor, wise and tactful, but a good disciplinarian. Twenty-five is the largest number of the class at one time. It was organized July 1, 1905, and none was accepted until the diagnosis of tuberculosis was positive, either by the finding of bacilli or by tuberculin. Not distinctly favorable patients were sought. All were poor, none being able to pay the $4 per week demanded by the State Sanatorium, and none were well educated.

The applicant for admission to the class promises that he or she will do no work and will lead the out-of-door life. A clinical history is taken and a complete physical examination made, the latter being repeated once a month. If no available roof, balcony or porch is at hand, the patient must move to where he may live out of doors all the time.

On the first visit the nurse gives the necessary rules to avoid the spread of the disease, and the physician is informed. There is a daily visit, many being necessary to impress the important rules on the members of the class. Tents are placed upon roofs and in the yards if available, and, excepting the time for a bath, meals and exercise, the patient's whole time is spent out of doors in a reclining chair.

The diet consists of milk, bread, butter, fruit and oil, and the patient must provide it himself. Cottonseed oil is a good and inexpensive substitute for olive oil.

For exercise the patient walks for five minutes in the morning and for the same time in the evening, the temperature being taken before and after, If the patient improves, then the exercise is increased; if he is not so well, the exercise is diminished. The exercise is taken watch in hand.

A very important aid is furnished by the individual record-books kept by each patient. In them are entered, first, the food eaten; second, the hours spent out of doors; third, the temperature, pulse, and weight; fourth, the exercise taken. This system helps the patients to persevere and keeps up courage, and they take a great pride in their records.

There is a weekly meeting of the class, where there is an inspection of records as to weight, pulse, temperature, food, etc. Two dollars per month is required from each patient. For the first six months the expenses of the class amounted to $513.

Among nine patients, members of the class for three months or more, one gained 39½ pounds in weight. In five of these nine the disease was arrested according to the terms of the national committee, and three of the five are ready to return to work. The bacilli have disappeared from the sputa of the three patients.

Tuberculin was administered to the patient who had gained 39½ pounds, and caused a return of cough and of bacilli in the sputum and a great reaction. Five hundred grams were given.

It is worthy of note that similar classes to this one have been established elsewhere.

Dr. Millet in 1898 was the first to insist upon the patient being out of doors in harsh climates, such a climate as is found throughout New England. In regard to the cottonseed oil, one teaspoonful per day is adminis-

tered at first, some patients taking up to 10 tablespoonfuls with no digestive disturbances.

The average gain per patient for the nine who have been in the class the longest is 19¾ pounds per patient.

Dr. Thayer: This, indeed, is an admirable paper, and shows the sort of work that should and might be done here. It is hard to make people do the simplest thing that would do them good, though easy to get them to take medicines, not only whose composition we do not know, but whose action also. These simple physical methods should be applied not only to tuberculosis, but to every disease. Rest, for example, the thing worth all the other factors put together, is the hardest thing to get.

Dr. Jacobs: Some maintain the sun is not necessary to the cure of tuberculosis, and in France there are those who will not allow the patient to appear in the direct rays, making the patient carry an umbrella if necessary to walk in the sunlight.

Dr. Pratt: Early diagnosis is important, and our series of cases is perhaps a favorable one. It is important to early recognize the disease and institute a rigid treatment. No case is too early a stage for the institution of rigid treatment.

Experimental Lesions of the Heart Valves—Dr. MacCallum. This paper will outline a sort of report of the course in experimental pathology given in the new laboratory during the past autumn. The course was designed to exhibit to a small number of students lesions of the heart from the point of view of functional disturbances. It was limited to the study of the circulatory system, though not entirely to the experimental side, as first the lesions of the heart were studied from specimens in the museum, and then experiments were undertaken to produce conditions similar to those actually seen in the wards.

Beginning with the pericardium, specimens of pericarditis were studied in the museum, and then the effects of a pericardial effusion were studied by introducing oil into the sac under pressure in the laboratory. The venous pressure, as recorded by manometers, rose and the arterial fell. When the oil was let out the reverse occurred.

Studies on the endocardium were carried out by producing lesions of the valves. By the method of Rosenbach, passing a probe down the carotid, aortic-valve lesions were produced, and the murmur and pulse familiar to all were caused. Mitral insufficiency was produced by means of a curved hook with an inner cutting edge. Passing this instrument through the tip of the auricle, the hook would engage and cut the chordae tendineae or edge of the mitral valve when it was withdrawn. The various pressure changes were studied with cannulae in various vessels. Tricuspid insufficiency was also produced, as was pulmonary and aortic stenosis.

In the study of the myocardium and the coronary circulation it is of interest to note that in the production of myocarditis by the injection of alcohol into the muscle the effect was minimal, and it was only after nearly the whole of the left ventricle was converted into a white boiled-like mass that the blood pressure came down.

The ligation of vessels was studied for the effect upon the blood pressure. It was found the ligation of the splanchnic area produced more effect than the ligation of the aorta above the renals, the splanchnic being left free.

Aneurisms were stimulated only in the tracheal tug. This was obtained by hitching the trachea to the arch of the aorta by means of a hook, when the typical tug was produced.

In the cases of mitral insufficiency the curves obtained with cannulae in various vessels were studied. In previous experiments the results had been drawn from models of glass and rubber, and these cannot correspond exactly to those from animal experimentation. It was found in mitral insufficiency the femoral pressure fell greatly, that in the left auricle was quite high, and the auricle and ventricle were thrown together into one cavity. The pulmonary pressure was not greatly changed, though it became higher from the damming back of blood. The pressure obtained from a cannula in the pulmonary artery directed towards the capillaries of the lung rises, and the curve shows beats transmitted through the capillaries. This explains the hypertrophy of the right ventricle, as it beats against the contractions of the left ventricle through the capillaries of the lung. In a similar manner the curve obtained from the pulmonary veins, with the cannula directed toward the heart, was examined, and the beat of the right ventricle was here shown.

Dr. McClure: Mitral stenosis was produced, first, by constricting ring between the finger and thumb; second, by ligation through the auricle-ventricular septum; third, by a balloon of rubber dam in the left auricle inflated through a cannula. The best stenosis was produced by the fourth method—a clamp. It was found the pressure in the auricle rose markedly, as did that of the pulmonary artery, while the pressure in the femoral vessels fell way below that of the others.

Dr. Welch: There is great significance in the establishment of a course of this kind, it never having been attempted anywhere else. It is of great educational value, and the work done, even along tolerably beaten tracks, has brought forward new facts of importance.

Dr. Thayer: From the point of view of physical diagnosis this is a very valuable course. The sounds of the dog's heart are just like those of the human heart, as are the characters of the murmurs. The character and transmission of the sounds in lesions of the heart are very interesting when listened to directly with the stethoscope upon the heart. For example, in the human subject the murmur of mitral insufficiency is best heard at the apex as a soft blow, really an unfavorable place, the point where the murmur ought to be heard loudest, being over the left auricle. Now, in the exposed dog's heart there is at the apex in mitral insufficiency the same soft blow as in the human subject, but if we place the hand on the left auricle behind we feel a thrill more intense than we have ever felt, and we hear a loud sawing murmur over the entire left side of the heart, the same murmur being heard over the dog's chest, shaved for the purpose, as a soft blow. This work offers great possibilities in the study of basal systolic murmurs, and is the best method of approaching auscultation for beginners in physical diagnosis.

MEETING HELD FEBRUARY 5, 1906.

Exhibition of Medical Cases—Dr. Barker. The first case I wish to show this evening is a man aged 42 years, a Russian, admitted January 29. Complaint: Weakness and stiffness in the legs and feet, and general bodily pains.

The patient remembers only measles and whooping cough during child-

hood, and was perfectly well until eight years ago, when he fell heavily upon the ice. Following the fall he felt nervous and became emotional, and had multiple disturbances of digestion. He was also troubled with increased frequency of micturition and from time to time a temporary swelling of the testicles. Three years ago he began to be troubled with a shooting pain in the frontal region of the head. Two years ago this same shooting pain appeared in the front of the right thigh and extended down the leg, both legs being weaker during the past year and stiff, the stiffness of the legs being more marked in the morning. A few months ago pain manifested itself in the shoulders, and there have been general pains variously distributed throughout the body.

The examination is interesting. The patient first impressed us as a man with an organic paraplegia. When he stands and tries to walk you note the fear of falling and the remarkable spasm of the legs, though they are brought straight forward in walking movements, with very little swinging to the side. The calf muscles seem short, and the patient walks on his toes. As the patient walks there is no marked tendency to adduction of the legs as with most paraplegias, but he walks with a wide base, the legs being far apart. As the legs are elevated and partly flexed they are thrown into a violent clonic spasm, as also happens at the least touch of the patellar tendon. When the patient stands with his eyes shut there is a very great fear of falling, and he holds himself very rigidly.

The ankle clonus is very easily produced, and it is interesting to watch as it varies in rythm from time to time, now being slow and now more rapid. In trying to produce the foot clonus the thigh clonus is easily produced.

The picture makes us think of a pyramidal-tract disease, and this is borne out by the examination of the eye grounds, which show evidences of an optic neuritis, with a present partial atrophy.

However, there has not been present on either side a Babinski reflex. When this is tested for there is a dorsal bending of the whole foot, but none of the great toe. Indeed, in the ward examinations there has been a plantar bending of the great toe. There never at any time has been noted a positive Babinski, Oppenheim, or Clark reflex.

We conclude this is a case of functional trouble, a traumatic neurosis developing after the fall eight years ago. That he has had some organic trouble is shown by his eye grounds, possibly luetic, though, of course, we are unable to tell. The gait is a typical pseudospastic.

Another feature pointing to a neurosis is the great mechanical excitability of the muscles—an active myoidema, showing a great increase in chemical excitability.

We think under the proper treatment the patient should recover completely and get back to work. The treatment is mainly by psychic persuasion along with isolation. The exhibition in the clinic is a bad thing for this patient with his marked emotional disturbance. A motive for recovery is an important element, as the worst cases of this disease are those where there is a motive for remaining ill—a damage suit.

Case 2.—This man has had lues, with definite secondary symptoms, and has since developed slightly spastic symptoms, with exaggerated knee-kicks and a tremor of the hands—markedly intentional, as a rule. There is some inco-ordination, but the main symptom is the tremor of the intentional type.

Whether or not this is a functional tremor associated with an organic disease is not positive—some multiple foci of sclerosis—as the patient has had repeated mercurial treatments, and a mercury-treatment tremor must be borne in mind.

Case 3.—This case has suddenly developed a special interest. The patient, a boy of 10 years, was admitted December 14, complaining of extreme thirst and an inability to retain the urine. The urine on examination was found to contain a large amount of sugar, acetone, and diacetic acid. The amount of sugar fell with dietary measures, but did not disappear, and rose again with the withdrawal of the treatment. Betaoxybutyric acid has not been found.

This morning there was marked dyspnea still noticeable, though less severe at present. Inspiration and expiration are prolonged, and the excursion is very wide—a mixed dyspnea. The patient is still very drowsy, with a marked acetone odor on the breath. The amount of carbohydrate in the urine is, of course, increased with the increment of the symptoms. It is necessary to increase the amount of carbyhydrate in the diet, as this will sometimes save the patient with the onset of grave symptoms.

The ammonia in the urine, other things being equal, is a measure of the acidosis.

This case emphasizes the gravity of this disease, especially in children, where the prognosis is more grave than in adults.

Case 4.—The case here shown is one I have never seen before, and Dr. Gilchrist has seen but one before. The signs have been noticed by the patient for 10 years, and involve the backs of the hands, forearms, thorax, and, indeed, the whole body. There is a curious macular appearance, at first sight like secondary lues, or at second sight like purpura. It is neither, however. The color is a dusky brownish-red, and if one presses firmly the compressed area is almost completely decolorized, which shows the blood is in the blood-vessels and there is no hemorrhage. There does remain a very slight coloration, probably some pigmentation. The patient is now 34 years old, and the probability is the condition was present in a nascent form from birth. This condition is known as nevus universalis, one of minute multiple nevi.

Case 5.—This man entered January 21, complaining of pain in the left wrist, both knees, and ankles. He is exposed to the weather, drinks two to three pints of beer a day, but does not overeat. He has not worked in lead. The joint condition was associated with tophi on the ears. The joints have been gouty joints, showing little now, though there is some slight deformity of the hands and slight thickening about the knee-joint.

This patient was brought down to emphasize two points: First, to illustrate the relation between this gouty condition and chronic interstitial nephritis. Every autopsy shows this association if fully made. Second, while gout is sometimes overlooked, the gouty condition is probably too often diagnosed when it does not exist. If the diagnosis was reserved for those cases showing tophi and joint involvement, fewer mistakes would be made. Other vague symptoms following uric-acid excess in the urine will not suffice.

In the treatment of gout there is no scientific basis for the use of uric-acid solvents so much vaunted by the manufacturers. No matter how much

lithium or piperazine is given, the sodium compound is always formed, it being the most difficultly-soluble compound.

Dr. Futcher: In regard to the boy with diabetic coma, I am struck with the difference in his condition now from that at noon today. He was then very deeply comatose and oblivious to his surroundings—so much so that an intravenous infusion of a solution of sodium bicarbonate was administered without anesthesia. He is now decidedly better, and shows well the beneficial effects of the antacid treatment. The patient had been getting previously moderate amounts of alkali, but with the onset of the coma symptoms the alkali had to be pushed, as per mouth and rectum the patient could not take enough. As high as a 2 per cent. solution has been given intravenously, but we prefer to give a 1 per cent. solution in normal saline, as a too strong solution will embarrass the heart's action.

There is no question as to the probable outcome in this case, as the patient will no doubt relapse and die in coma within the next few days, though I have seen cases with as deep coma at Naunyn's clinic that did not relapse for three weeks.

In connection with the last case in the Physiological Chemical Laboratory here, Jones, Winternitz, and Partridge have done some interesting work concerning certain ferments. These act on the purin bodies and are found in certain glands. One, the ferment adenase, has the power of hydrolyzing adenin to hypoxanthin; another, guanase, will change guanin to xanthin; xanthase will oxidize xanthin to uric acid, the highest oxidation product of the series. So we have a group of ferments that may convert the lowest to the highest of these five bodies mentioned. There has also been found a ferment—nuclease—that will split off the nuclein portion of the nucleoproteid of food when these other ferments will convert it to the end product—uric acid. There is also a ferment in the liver that will destroy uric acid.

Again, Chittenden's work at New Haven on the proteid diet, with the estimation of the uric acid, is important in this connection. The subjects of the experiments were allowed a proteid diet and given considerable amounts of alcohol, the uric-acid output being estimated and found to be markedly increased. Then the same subjects were put on a purin free diet and the amount of uric acid determined. They were then given amounts of alcohol, and no increase was found in the output of the uric acid. Therefore alcohol influences only the exogenous uric acid, an observation that fits in well with the clinical evidence that alcohol has an injurious influence in this disease. The effect of the alcohol is to destroy the oxidase of the liver, and the uric acid, not being destroyed, we find an excess in the urine. Great facts of therapeutic importance will no doubt come from the above discoveries.

Dr. MacCallum: I should like to ask the basis for the life-saving effects of the carbohydrates in the coma of diabetes.

Dr. Barker: The mechanical action could not be explained. The theory is there has to be a sort of balance among the three main constituents of the food. If this is too long disturbed, we throw the action of the organism out of gear.

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BALTIMORE, APRIL, 1906

ANOTHER WORD ON THE TUBERCULOSIS CAMPAIGN.

EDITORIAL comment was made last month on the status of the antituberculosis campaign. An important change has occurred in the meantime. The commissioner of health of Baltimore has secured the appropriation necessary for disinfection of houses vacated by consumptives, and the alignment of governmental agencies against tuberculosis has been materially strengthened. It is no longer possible to say, as was said a month ago, that some of the counties are ahead of Baltimore city in this respect, and since one-half of the people of Maryland are within the sanitary jurisdiction of Baltimore, the significance of Dr. Bosley's success is most encouraging.

A difficulty yet remaining lies wholly outside the sphere of administration and wholly within the sphere of private practice. The question of diagnosis brings up this difficulty. The prevention of tuberculosis is not very seriously hampered by delayed diagnosis, though small advantages count in so great a task. But in the cure of tuberculosis prompt diagnosis is the main condition of success, and until the professional mind has grown keen in the diagnosis of early tuberculosis the progress of the antituberculosis campaign will lack its most satisfying feature. With so much at stake one would suppose that modern methods of diagnosis would come very rapidly into common use, especially in a disease so common as tuberculosis. But there are still some hundreds of physicians in Maryland who do not resort to sputum examinations for this purpose, and who believe that they do not need laboratory aid in the diagnosis of any of the common diseases of this latitude. Most of them are inveterate delinquents in the matter of diagnosis, and the patient public must endure them until their day has passed. Some of them, however, are rather clever at physical diagnosis and somewhat proud to be independent of laboratory aids. They consider themselves "practical" in a very superior sense. They are nevertheless behind the times, being halted by their aptitude, not one stadium, but two stadia rearward.

In the diagnosis of tuberculosis the microscopic examination of stained sputum can no longer be spoken of as modern. The diagnosis established by such means is, in fact, seldom an early diagnosis, and the method seems rather less important now than it seemed 10 years ago. The chief reward of sputum examinations has come to those who habitually employ such means, and the reward has come in the remarkable improvement of their physical diagnosis. It is by way of the sputum examination that the physical diagnosis of pulmonary diagnosis is being perfected to a degree of skill

hopeless of attainment by those who do not consult the stained specimen. There is but one answer to the physician who claims that his diagnosis of tuberculosis or of typhoid fever or diphtheria is good enough without recourse to the laboratory: Nonsense. That grade of efficiency which is attainable without laboratory aid is not respectable today; tomorrow it will be contemptible, and the next day criminal.

AN AMENDMENT TO THE VITAL-STATISTICS LAW.

From 1898 to 1906 each successive legislature has made some alteration in the law on vital statistics. The amendment recently passed will probably give Maryland as good returns as are obtained anywhere in the United States. This amendment authorizes the State Board of Health to take into its own hand the administration of any local office whose registration is unsatisfactory and to operate the registration for a period of three months. If the returns under the administration of the State Board of Health do not exceed by 10 per cent. the returns for the corresponding period of the preceding year under local administration, the expense is paid by the State Board of Health. If a 10 per cent. improvement is made, the expense is paid by the locality. This is a fair proposition, and the bill went through without material opposition. The State Board of Health can afford to take a chance in any locality where the indicated deficiency is less than 10 per cent., for a local office can be operated at small cost, and if the returns should show but 6 or 7 per cent. of numerical increase, a reliable standard would be established, so that a stricter accountability can be enforced upon the locality. The returns of deaths in Maryland are now up to the very moderate standard of the United States Centus Bureau, whose "registration area" includes all States whose official returns of mortality lack no more than 10 per cent. of completeness. There are but three or four counties whose mortality returns are now very deficient numerically, so that the State Board of Health has no great task ahead in bringing every county up to the 90 per cent. mark. It has been a somewhat tedious business to develop a sense of public responsibility for the prompt and accurate registration of current mortality. A great deal of important sanitary work has been delayed for the sake of completing this foundation of vital statistics, and with its completion an era of real sanitary administration should begin.

One may congratulate the State upon the certainty that Maryland will be numbered in the small group of "registration States," but that advance, important as it is, does not signify that the foundation work in vital statistics has been completed. Satisfactory registration of deaths is now accomplished in 11 or 12 of the United States, but satisfactory registration of births has not been attained anywhere in America. The recent amendment applies to births as well as deaths. It is not likely, however, to prove very effective in bringing the registration of births up to numerical completeness. Registration of births waits upon amendments to other laws which define certain rights, duties and immunities of citizens according to attained age. The Dorton bill, regulating child labor, if it becomes a law, will help the registration of births, for it conditions the employment of children in gainful occupations upon their age as indicated by the official record of birth. When official records of birth furnish the most convenient means of estab-

lishing the right to attend school, to vote, to marry, to hold real estate, to enter the public service, registration of births will be as well done in America as anywhere.

TWO BILLS WHICH FAILED.

Among the bills which failed one must mention first that proposed by the Carroll County Medical Society. This was a local bill, and its fate rested wholly with the Carroll county delegation. It provided for the appointment by the county commissioners of one central health officer and a subordinate officer in each of the 10 election districts. The expense on account of salaries would have been less than $400 a year. The measure was prepared long before the election, and the legislative candidates were interrogated as to their attitude toward the bill. Before the election the members of the Carroll County Medical Society believed that their bill would pass, no matter how the election resulted. The opposition to the bill came from the county commissioners, and from no other visible source. The three county commissioners are accustomed to waste a niggardly sum on a formal compliance with the health laws, but they are unwilling to spend an amount which will yield any return, and the possibility of a profit on sanitary administration does not appeal to them at all. These three men, who throw away a morsel out of the public treasury every year in order to fool the people with a sham board of health, were strong enough to defeat the organized medical profession of Carroll county. Perhaps the Carroll County Medical Society will learn from this experience in what contempt the views of medical men may be held by public officials, and may take steps to enforce respect for medical opinion upon the most obstinate and least enlightened local board of health in Western Maryland.

Another measure in which the medical profession was interested failed as signally. This was the patent-medicine bill. The House of Delegates of the Medical and Chirurgical Faculty passed resolutions on December 16 in favor of restrictive legislation on this subject. The Baltimore City Medical Society devoted its annual meeting on December 5 to the nostrum evil. The Godwin bill, when it appeared, was vigorously taken up by the Faculty, and a large public meeting in its favor was held at McCoy Hall. Its decisive failure was disappointing, but the matter is more unfortunate than the fact of its defeat. It was beaten by the druggists. It is not surprising that many druggists were very much opposed to the Godwin bill, but it is worth while for medical men to reflect carefully on the fact that the druggists exerted themselves against the physicians on a measure which would in all probability have been defeated by other enemies who, in fact, never appeared against it. It is perhaps true that the Godwin bill did not fairly divide the sheep from the goats, but the sheep who found themselves on the wrong side of the line assumed without hesitation an attitude which caused some surprise among medical men. Apparently they could afford to become aggressively hostile to the medical profession. The bill was killed by first amending it so that the objections of the druggists were apparently uncovered, and then leaving the new measure to its fate. When the bill came up again in committee the medical profession had another matter at stake and made no plea for the patent-medicine bill, and, succeeding against the one proposition, lost the other.

Medical Items.

BALTIMORE.

The State Board of Health is conducting a course of popular lectures on "Milk," nine in number, and leading up to a milk exhibition which will open on May 6 and continue for one week.

The first lecture was given on Tuesday, February 20, by Dr. John S. Fulton, secretary of the State Board of Health, on "The Scope and Purpose of the Present Investigation," with some remarks on the price of milk. Dr. Wm. H. Welch presided.

The second lecture was given on Tuesday, February 27, by Dr. George W. Goler, health officer of Rochester, on "The Origin, Development and Results of Municipal Milk Work in Rochester." Dr. James Bosley presided.

The third lecture was given on Tuesday, March 6, by Mr. Samuel C. Prescott of Boston, Mass., on "The Production of Clean Milk as a Practical Proposition." Mr. Samuel M. Shoemaker presided.

The fourth lecture was given on Tuesday, March 13, by Dr. J. H. Mason Knox, Baltimore, on "The Relations of Milk Supply to Infant Mortality," with special reference to the children of the poor in Baltimore. Dr. Charles W. Mitchell presided.

The fifth lecture was given on Tuesday, March 20, by Mr. Clarence B. Lane, assistant chief of the dairy division of the United States Department of Agriculture, Washington, D. C., on "Some Observations of the Department of Agriculture on the Dairy Business of This Country." Dr. John C. Hemmeter presided.

The sixth lecture was given on Tuesday, March 27, by Dr. Leonard Pearson, University of Pennsylvania, Philadelphia, Pa. This lecture was given under the auspices of the Maryland Association for the Prevention and Relief of Tuberculosis. Dr. Pearson discussed the relations of milk to tuberculosis and described the immunization of dairy cattle against tuberculous infection. Dr. Henry Barton Jacobs presided.

The seventh lecture will be given on Tuesday, April 3, by Dr. C. Hampson Jones, assistant commissioner of health, Baltimore, on "The Present Aspects and Needs of the Milk Supply of Baltimore." Dr. Llewellys F. Barker will preside.

The eight lecture will occur on Tuesday, April 17, by Dr. George M. Kober, Washington, D. C., on "Morbific and Infectious Milk." Dr. William S. Thayer will preside.

The ninth lecture will occur on Wednesday, April 25, and will be given under the auspices of the Medical and Chirurgical Faculty. The annual orator for 1906, Dr. Abraham Jacobi of New York, will lecture on "The Feeding of Infants." This will be the last lecture before the exhibition. The exhibition will open on May 7. It will cover all the hygienic, dietetic, economic, and technical relations of milk and milk products. The exhibition will be conducted very much as the tuberculosis exposition of 1904 was conducted. It will have a logical arrangement, the materials being classified as follows: The chemistry of milk, the physiology and bacteriology of milk, the epidemiology of milk, milk statistics, sophistications and adulterations, the manufacture of commercial kinds of milk and milk products, dairy utensils and dairy machinery, model dairies, medical milk commissions, milk dispensaries, modification of milk, municipal control of milk supplies, the technical uses of skim milk and casein, culinary uses of milk, preservation and transportation, literature of the dairy, the dairy customs of foreign lands.

The contributors to the exhibition will be boards of health, medical milk commissions, philanthropic agencies, research laboratories, agricultural experiment stations, sanitary live-stock boards, State dairy departments, United States Department of Agriculture, select list of supply houses, and other commercial milk factories. The corps of demonstrators will be on duty all the time, as was the case during the tuberculosis exhibition. This movement has excited a great deal of interest in various parts of the country, and the probabilities are that the exhibition will travel quite extensively after its work is done here. Lectures will occur every day. Among those who will speak during the week are Dr. Charles Harrington of Boston, Dr. Walter A. Bensel of New York, Dr. Ernest J. Lederle of New York, and Mr. Stephen Francisco of Mt. Clair, N. J.

Local committees are now being formed to take in hand the arrangement of the various subdivisions of the exhibition. At the beginning of the undertaking one of the difficult questions seemed to be how to reach the dairy farmer. This problem has been solved by means of the "milk special." Mr. Amoss, director of farmers' institutes, is taking a party of lecturers through the dairy regions supplying the Baltimore market, and instructing the farmers. On Friday and Saturday, March 23 and 24, Dr. John S. Fulton accompanied this train over the Maryland & Pennsylvania Railroad, and on

March 26 and 27 Dr. C. Hampson Jones accompanied a similar "dairy special" over the Western Maryland Railroad. The lectures were given under the direction of Prof. H. F. Patterson of the Maryland Agricultural Experiment Station. The train schedules were made up so that audiences were met at prearranged hour at the various stations, and the farmers were taken into the passenger coach, where they heard two lectures. Train was then emptied and moved on to the next station. The practical dairymen accompanying the train were Professor Patterson and Dr. Jared Van Wagenen of New York.

The new section added to the Vital Statistics Law is as follows:

Section 18A. Whenever the State Board of Health shall have reason to believe that any local registrar of vital statistics does not make full and complete records as required by the provisions of this act, the State Board of Health shall take charge of and shall operate the local registration office for a period of three months, after having given to the local board of health not less than 30 days' previous notice in writing, and the State Board of Health shall pay the expenses incurred on account of the local registration office for the time being; provided, that the registration during that period shall be less than 10 per cent. in excess of that recorded by the local registrar in the corresponding three months of the year next preceding; and provided, further, that in case the registration by the State Board of Health shall exceed by 10 per cent. or more the registration of the local registrar in the corresponding three months of the year next preceding, the expenses shall be paid by the local board of health.

Sec. 2. And be it enacted, That this act shall take effect from the date of its passage.

MARYLAND.

Smallpox has appeared during the month in Anne Arundel, Howard, Baltimore, Worcester and Somerset counties. The State of Virginia is furnishing nearly all of the smallpox occurring in Maryland this year.

The bill prepared by the tuberculosis commission creating the Maryland Tuberculosis Sanatorium was introduced in the Maryland Senate by Mr. Moore of Worcester county. It appropriates $50,000 for the year 1906 and a like sum in 1907 for the purpose of buying a site and erecting a sanatorium. The sum of $1500 is appropriated for maintenance in 1907. The sanatorium is to be governed by nine trustees, of whom the governor, the comptroller and the State treasurer are three, and six others are to be appointed by the governor.

GENERAL.

The Iowa State Board of Health has adopted a rule excluding tuberculous children and tuberculous teachers from the public schools of that State. Foolish legislation such as this would stop the antituberculosis crusade if it could be stopped.

The Hungarian faster Sacco has recently finished a fast of 45 days. He lost 55 pounds, but was in good physical condition at the end of the test. During the period he smoked 952 cigarettes and drank 22 bottles of table water.

Twenty-one hundred citizens of Mansfield, Ohio, have signed petitions asking that the Carnegie Library now under construction be converted into a hospital and that the $10,000 given by Mr. Carnegie be returned to him if he will not consent to its use for a hospital building.

A West Cumberland (England) schoolmaster caught some boys chewing tobacco. By way of punishment he required the boys to swallow their tobacco. Two of them became violently sick and had to be taken very good care of for some time before they were able to return to their homes. A wise schoolmaster, that.

The faculty of Creighton Medical College, Omaha, is sued by a student who claims $50,000 damages on account of having been completely and permanently disabled as a result of hazing. He was dragged from his room by sophomores who said that they intended to throw him into a ventilating shaft. He resisted violently, and in the fight received a kick which injured his spine so that he has been obliged to go on crutches ever since.

The city Board of Health of New Orleans has offered a premium of $5 for the first female stigomyia captured in the city during the month of March, and less premiums for the second and third. The insects must be delivered to the health officer with a statement as to the place and date of discovery. At the end of the month no one has offered the coveted insects for Dr. Kohnke's inspection, though a queer collection of entomologic specimens has been sent to the health department.

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NASAL HEADACHES.

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Baltimore.

READ BEFORE THE OPHTHALMOLOGICAL AND RHINOLOGICAL SECTIONS, FEBRUARY 23, 1906.

Only a few years ago a rhinologist would have felt like apologizing for venturing to read a paper on nasal headaches before a body of medical men. The oculist had succeeded in relieving many sufferers by the prescribing of proper glasses for the different forms of refractive errors and correcting muscular imbalance. The surgeon had contributed his share in the relief of pain by stretching or cutting the supraorbital or infratorbital nerves, or both branches of the trigeminus, or by the removal of the gasserian ganglion. The neurologist and gynecologist had found that a certain number of headaches came within their province. Last, but by no means least, the man on internal medicine had done his share in relieving pain in the head. A more certain knowledge of the etiology of headaches and better diagnostic methods had helped in all these branches of medicine. There remained a certain number of patients, however, who failed to obtain relief. All this time the rhinologist had not said much on the subject of headaches, because his means of diagnosis were crude and his data small on which to base sure conclusions. Thanks to better diagnostic means and the knowledge obtained at the autopsy table, the nasal surgeon began to make the assertion that some head pains were caused by trouble in the nose and the accessory cavities, and could be relieved by the treatment of the same. He had great difficulty in convincing his friends in the other branches of medicine that an insignificant organ like the nose could produce the most atrocious pains. He worked steadily on, however, and today is more certain of his ground than ever before. He can at last take his place along with his associates in pathology and prove that nasal surgery is just as important in the relief of pain as treatment in other branches of medicine. So certain is he of this fact that he can say that no case of headache should be pronounced hopeless until a careful examination of the nose has been made. In not a few cases the solution of the mystery will be found there. I cannot do better in this connection than quote the words of Hajek in his book, "Die Nebenhöhle der Nase," in which he says that he has often heard that a headache which comes on in attacks at the same time of the

day is a typical neuralgia of the supraorbital nerve. Behind this typical intermittent neuralgia how often has he found empyema of the frontal sinus! Particularly do the so-called influenza neuralgias of the trigeminus reveal themselves regularly as typical empyemata of the accessory cavities.

In taking up headaches of nasal origin I will first refer briefly to certain conditions in the nose which may produce pain; then I will describe more particularly diseases of the accessory cavities, because I believe that many pathological processes in the nose are dependent upon trouble in one or more of these cavities. We are all familiar with the feeling of fullness or pain when the nasal fossae are swollen from an acute coryza which may be referred to the region of the antrum or the frontal sinus. That these pains are caused by a congestion of the mucous membrane seems proven by the fact that the application of cocaine and adrenalin to the region of the middle turbinate tends to relieve the symptom, and with the subsidence of the trouble in the nose the pains often entirely disappear. A chronic enlargement of the middle turbinate has been known to produce faceache in the region of the infraorbital nerve, probably from pressure. A swelling of all the structures in the nose may produce pain by pressure on the surrounding tissues and on each other. The ache of chronic nasal catarrh may be referred to any part of the head. The location of the neuralgia would seem to indicate that obstruction to the normal openings of the accessory cavities by the hypertrophied tissue is at least secondary in its production. It is a fact that removal of the offending middle turbinate will often cure obstinate headache, and this may be due to better drainage secured to the cavity openings. A like explanation can be applied to deviation of the septum and to ledges which are so large as to make firm pressure on the surrounding parts. Where very large masses, as rapidly-growing tumors, are found in the nose the increasing pressure on the nerves no doubt gives rise to a true neuralgia. The presence of nasal polypi explains a certain number of headaches, but here, again, we may have insufficient drainage of the cavities.

Antrum of Highmore.—Local pain is not a common symptom of disease of this cavity. Sometimes in acute empyema there may be attacks of neuralgia, especially in those cases where the trouble originates in a tooth giving rise to a severe periostitis of the alveolar process or where the disease follows influenza or erysipelas. Particularly in this latter class of cases is there a painful sensation of pressure, which is most pronounced in the frontal process of the upper jaw. The pain can reveal itself as a constant, dull sensation of pressure or at certain times of the day simulate a true neuralgia of great intensity in the region of the infraorbital nerve. Less frequently the pain asserts itself in all the dental nerves of the upper jaw—a sort of neuralgia of the dental nerves. It is probable that the suffering in acute empyema is due to retained secretion and great swelling of the mucous membrane, which practically closes the normal outlet of the antrum. In rare cases the pain may radiate through the first branch of the trigeminus to the region of

the frontal sinus. In still other cases the pain is referred entirely to the frontal region without any involvement of the sinus. Hartman attributes this remote pain to swelling of the frontonasal canal, but it is probably due to pressure on the nerves. The localization of the pain in acute empyema is well illustrated by the following cases:

J. R., 25 years old, had a mild attack of influenza in the spring of 1905. During his illness he was taken with a severe pain over the left antrum. The teeth ached and felt as if they were elongated. There was also a feeling of pressure, with neuralgia of the infra-orbital nerve. The wall of the antrum was swollen and sensitive to pressure. Washing out the antrum gave great relief.

M. G., aged 30 years, following a cold, had a sensation of pain and pressure over the antrum. The anterior wall was sensitive to touch. The patient objected to washing the antrum, so pledgets of cotton containing cocaine and adrenalin were applied to the middle turbinate. In chronic empyema of the antrum, as a rule, there is no decided pain. Headache, when present, is of a diffuse form, and seems to be more pronounced when the patient is excited or nervous. Rapidly-growing tumors in the antrum produce great pain by pressure on the walls and nerves.

Disease of the frontal sinus is perhaps the most important nasal cause of headache and neuralgia. The location and size of the cavity, with its small canal for drainage, easily account for this fact. Moreover, there is often in the nose in these cases hypertrophied tissue or nasal polypi exerting pressure on the canal, or sometimes a swelling of the mucous membrane of the canal itself. The pain can simulate a neuralgia or a diffuse headache. It can be constant or intermittent. In acute rhinitis an existing empyema often undergoes an exacerbation, with increase of the secretion and a stagnation, so to speak. These factors cause an increase of pain. With the departure of the swelling of the acute inflammation the canal becomes more open and the pain is relieved. We find, therefore, that periodic headache is often present in inflammation of the frontal sinus. In some cases there is an interval of weeks or months between the attacks. The pain does not always entirely disappear between the attacks. It may be slight or bearable, while that of the exacerbation is agonizing in its intensity. The typical pain of frontal-sinus disease is neuralgic in character, occurring in definite attacks at or near the same hour daily, the intervals being entirely free from pain. The attack comes on upon arising or shortly afterwards, lasts from two to five hours, and then disappears until the next day. The explanation of these attacks is easy when we recall the anatomy of the cavity. During sleep the frontonasal canal assumes a higher position and the pus occupies a relatively larger surface of the sinus. On assuming the upright position the canal becomes the lowest point and all the pus presses upon its swollen walls. The pain is produced by pressure, and continues until the pus forces its way through in its effort to secure free drainage. There is another class of cases which is more difficult of explanation, in which the attacks, instead of

appearing early in the morning, come on about noon or in the afternoon. The region of the supraorbital nerve is peculiarly sensitive, and it may be that there is some connection between the nerve and the collection of pus. It can readily be seen that disease of the frontal sinus may cause all degrees of pain, from a feeling of fullness or tension in the head and eyes to the most agonizing suffering. There are several cases recorded where the air in the sinus has apparently been the cause of headache. These cases were opened and no disease found. The patients, however, recovered.

Tumors growing in the frontal sinus can produce pain by pressure on its walls. The following cases show how varied the pain of frontal-sinus disease may be:

M. G., female, contracted a cold, following which she had severe pain over the left eye. The pain was worse in the morning, but never entirely disappeared. She was treated for supraorbital neuralgia, with little or no relief. Examination of the frontal sinus showed slight bulging of the anterior wall and tenderness on pressure. After applying cocaine and adrenalin to the middle turbinate, a tube was passed into the cavity and the same washed out with weak boracic-acid solution. About two drams of thick, stringy pus came away, and the patient experienced great relief. A few washings effected a cure. In this case it was clearly evident that the pain was due to the swelling of the tissues in the nose and the mucous membrane of the canal which prevented drainage.

J. L., male, suddenly experienced pain over both eyes. An exophthalmos of the left eye rapidly developed. The patient was referred to me for nasal examination. The anterior wall of the left sinus was tender on palpation and percussion. Cocaine and adrenalin shrunk the tissues so that a probe could be passed into the cavity. Pus followed the removal of the probe in such quantity that washing was not resorted to. After a few days of treatment the patient was much improved both as to the exophthalmos and the pain.

T. M., 23 years old, had suffered for some years with periodical attacks of what he thought was neuralgia of the supraorbital nerve. The pain was limited to the right side and was of great intensity. During the attacks the patient was incapable of any kind of mental work. There was at all times a feeling of tension in the right nostril. Examination of the nose showed a small amount of pus in the region of the middle turbinate, which was enlarged and exerting pressure on the surrounding tissues. The anterior end of the turbinate was removed with difficulty. Two days later the sinus was washed out and about a dram of very thick pus removed. The patient is now free from pain.

G. P., male, 30 years old, in February, 1904, had a mild case of "grip." Two weeks after recovery he was seized with pain over the left eye. This pain would begin in the temporal region with a feeling of fullness or tension, and pass inward towards the middle line of the forehead, gradually growing more and more intense until it was agonizing in character. The attacks recurred every other day at 12 o'clock or between the hours of 12 and 4 P. M.

The duration of the pain was five hours. The patient consulted his family physician, who gave him anodynes, with no relief. He was treated for neuralgia, neurasthenia, astigmatism, malaria, stomach trouble, and liver trouble. He was advised to have injections of osmic acid and electricity before having the supraorbital nerve cut. Finally, a gasserian-ganglion operation was suggested. Here, again, the cause of the pain was pus in the frontal sinus. After opening the sinus and removing the diseased membrane the cavity slowly filled with granulation tissue, and the patient made a good recovery.

H. K., 65 years old, had complained of a dull, constant pain over the right eye and side of the head for some years. His eyes had been examined, and he had been treated for various troubles, with only partial relief. Early in 1905 he began to have typical frontal-sinus pains. The attack would come on about 9 o'clock in the morning and last until 1 or 2 o'clock in the afternoon. During these attacks the greatest pain was over the supraorbital nerve. He was never entirely free from pain. Removal of the anterior end of the middle turbinate and repeated washings with a weak boric-acid solution established free drainage and cured the headaches.

Miss S., following an attack of "grip," was seized with severe neuralgia over and in the left eye. Two weeks later "something broke" in her head and she experienced great relief. She did not recover her health, and was so run down that one physician assured her that she had pulmonary consumption. At times the pain in her head gave much trouble, as did a profuse discharge into the throat. During the summer of 1905 she took cold, following which the neuralgia returned with all its former intensity. The middle turbinate was removed and the sinus washed out repeatedly, with the result that the patient is much improved.

J. K. came to the Presbyterian Hospital in December, 1905, for severe pain in the right eye. He stated that he had had such attacks before, and that the pain was so great he could not sleep and was unfit for any kind of work. After cocainizing the middle turbinate I succeeded in passing a probe into the sinus. An attempt to wash out the cavity failed. The treatment was repeated for some days, when there was a free discharge of pus, with relief of pain. In this case the pain was due to an acute exacerbation of a chronic sinusitis.

It is obvious that a careful examination of the frontal sinus is important in eye, face, and headache. The varieties of the pains in disease of this sinus are numerous. The fact that no pus is found in the nose must not mislead us, for there are cases of latent disease where this symptom is not present. In the fourth case of the above series repeated examinations failed to reveal pus, and the patient, who was a very intelligent man, had observed no discharge from the nose or throat. I am convinced that we must pay more attention to the frontal sinus if we would explain obscure headaches not relieved by other methods of treatment.

The Ethmoid Cells.—That these cells, subdivided into anterior and posterior, may, under diseased conditions, give rise to head-

aches has been proven repeatedly. The forms of pain are just as varied as in disease of the frontal sinus, but in my experience not as severe. In the cases which I have seen the patients complained of a dull pain located in the temple region or in the vault of the head. In one case there was an intense neuralgia of the left eye, which was relieved by free drainage. Another pain is located across the bridge of the nose. This is often described as a sense of pressure, which in some cases becomes almost unbearable. In the acute inflammations or the exacerbations of the chronic form pain is a constant attendant. The worst cases I have seen were accompanied by nasal polypi or masses of hypertrophied tissue, or both, giving rise to deficient drainage from pressure on the normal openings of the cells.

The Sphenoidal Sinus.—Schäffer claims that in acute inflammation of this cavity headache is a constant symptom. The pain is sometimes located as a feeling of pressure in the occipital region, the vault of the head or the back of the eyes. Hajek records a case in which the pain was in the left supraorbital region. In chronic cases the location of the pain is not constant. There may be a diffuse pressure or pain in the occipital region, with or without stiffness of the neck. Again, the pain is at the vault of the head, with projections into the temporal or frontal regions. Genuine neuralgic attacks are rare. Schäffer and Rouge have each reported cases of infraorbital neuralgia. Of all the factors causing nasal headaches the frontal sinus is most to blame. The other cavities, while producing pain in a certain number of cases, do not give rise to the intense neuralgias which are so typical of frontal-sinus disease. The most important single cause of nasal headaches is perhaps insufficient drainage. Pressure from hypertrophied tissue is probably the cause of some slight neuralgias and feelings of tension in the nose. We know that many cases of accessory-cavity disease are relieved by securing good drainage without other treatment. Is it not therefore highly probable that headaches apparently cured by the removal of a ledge or a turbinate are really obscure diseases of these cavities? I do not claim that such obstructions cannot of themselves produce pain by pressure on the various nerves in the nose, but I have never been able to establish a direct connection between the two.

The Significance of Nasal Headache.—Though we are beginning to realize that nasal headaches do exist and are assuming an important place in medicine, they have not taken the position in pathology which belongs to them. Those of us who have studied the anatomy of the accessory cavities—their thin walls, their nearness to the vital centers—cannot but be impressed with the fact that pus confined in them without proper drainage must constitute an element of danger both as regards health and life. In looking over the statistics of deaths from empyema, which are far from complete, I have found that in nearly every case headache, more or less intense, preceded the fatal issue. The inference to be drawn from this is that headache constitutes a symptom of danger, and if, after drainage has been established through the nose, it persists,

better drainage, with an examination of the walls, must be secured by an external operation. Hajek has collected a number of deaths from accessory-cavity disease, and his list is not complete. In his article on brain complications he makes the significant statement that in meningitis and abscess of the brain only exceptionally has a careful section of the nose been made, and that often striking macroscopic changes are wanting at the base of the brain or skull which would lead to the origin of the disease. From these facts he concludes that cerebral disease of nasal origin is much more common than statistics show. Among the deaths from accessory-cavity disease we find the following interesting and instructive cases:

1. Observation of Paulsie (1861). — Female, 23 years old, pregnant, was suddenly attacked with headache. At the same time a small tumor appeared in the frontal region. She rapidly became stupid, the pupils contracted moderately, and on the third day death, preceded by paralysis of the right side of the body, ensued.

2. Observation of Bouret and Lacard (1875).—Male, 22 years old, had received a blow in the right orbital region six months before. At the time of the examination he had a swelling in the right orbital region, lid abscess, chemosis, exophthalmos, fever, and severe headache. The swelling was incised, with the escape of 150 grams of pus. Ataxic symptoms, deep adynamia, hiccough, loss of consciousness, and left-sided hemiplegia developed, and death occurred on the fifth day.

3. Observation of Knopp (1880).—Female, 30 years old, had lid abscess, ushered in with a chill. The outer half of the upper orbital ridge was red, swollen, and tender to the touch. On the sixth day headache and vomiting, and on the ninth day death. Section showed bone necrosis on the inner anterior part of the horizontal process of the frontal bone. The dura at this point was blue and covered with drops of pus. In the necrosis was a perforation leading into the temporal end of the sinus, which was filled with fetid pus; etimoid cells also filled with pus; abscess of left frontal lobe of brain.

4. Observation of Huguenin.—Male, 19 years old, had complained of headache for a few days in the forehead and occipital region. Three days later all the symptoms of meningitis came on, and on the fourth day the patient died in coma. Section showed the mucous membranes of both frontal sinuses covered with pus. The dura was adherent; perforation of the bone inward; band of connective tissue connecting the bone with the dura, and this, in turn, with the pia, which showed purulent inflammation.

5. Observation of Redtenbacher (1892).—Female, 34 years old, caught a severe cold, with high fever. Two days later the left upper lid became swollen. About a month later there was a sudden fainting spell, with clonic convulsions. At the same time a small swelling appeared above the forehead, and associated with this were headache, epileptiform attacks, and weakness of the right half of the body. The tumor of the lid was opened and the wound

healed, but the headaches persisted. Two months later the patient died.

6. Observation of Weichselbaum (1890).—Male, had influenza, followed by swelling of the right upper lid. Incision revealed pus. The next day the patient complained of headache, followed by vomiting, delirium, unconsciousness, and death. Section showed abscess of right upper lid, pus in right antrum and frontal sinus, and between the posterior wall of the right sinus and the dura, which was likewise infiltrated with pus. Opposite this point in the frontal lobe was a fresh abscess. The membranes of the brain were infiltrated with pus. The diagnosis was lepto and pachymeningitis, and brain abscess caused by empyema of the antrum and frontal sinus.

7. Observation of Jakubasch (1878).—Male, 20 years old; had for some time had a dull, constant headache in the right half of the head. The pain suddenly increased in intensity, and attacks of dizziness and vomiting made their appearance. The patient was received into the hospital with the following symptoms: A very decided apathy, pupils reacting lazily, speech slow, vomiting, and headache; ten days later increase of apathy, severe pain in neck, and sensitiveness to pressure of entire spinal cord; death one month later. Section showed numerous and intimate adhesions between the right ethmoidal plate and the meninges. On the bone no carious or necrotic process could be found. After the removal of the brain the walls of the right frontal lobe fell together and there escaped about 120 grams of thin pus. An incision through the middle of the lobe opened a second abscess containing thick pus.

8. Observation of Ewald (1890).—Young male, had influenza three weeks before he was seen. For eight days he had suffered with pain in the second branch of the trigeminus. Two days before his reception into the hospital he began to have chills in the morning. The next day a friend found him unconscious. The patient died in coma. Section showed a circumscribed, purulent meningitis, which was especially prominent at the base of the brain. The inner layers of the ethmoid bones and the superior turbinates were covered with thick pus. A direct connection between the process on the meninges and the ethmoid cells could not be demonstrated.

9. Observation of Duplay (1874).—Female, 45 years old; had facial erysipelas, with intense pain in and around the right orbit; three months later right exophthalmos and blindness; death in coma six days after examination. Section showed basal meningitis especially marked in the region of the sella turcica; in the left frontal lobe superficial softening, with numerous punctiform hemorrhages; purulent phlebitis in most of the sinuses, particularly in the coronary, cavernous, and the right and left petrosal. The periosteum was easily removed from the sella turcica and the basilar apophysis; it was thickened and reddened, and the bone under it was soft; the sphenoidal sinus full of pus, the bone exposed. Duplay believed that the inflammation passed through the bone to the meninges.

10. Observation of Russell (1878).—Male, 34 years old; was

attacked suddenly with headache in the left temporal region; death three weeks later. Section showed ethmoid and sphenoid cells filled with a fluid of brown color in which was the detached mucous membrane. The bony walls were not necrotic. Under the dura along the entire length of the sphenoidal sinus was a large collection of partly-disorganized blood. The cavernous and circular sinuses and the ophthalmic veins of the left side were plugged with solid thrombi. A purulent exudate covered the middle fossa and surrounded the ophthalmic vessels and the left trigeminus.

11. Female, 40 years old; was taken suddenly with headache in the left temporal region, fever, chills, loss of appetite; three days later swelling of left upper lid, exophthalmos, diminished vision, gradually increasing to total blindness; death in collapse on the ninth day. Section showed basal meningitis along the entire under surface of the brain. The purulent exudate compressed the chiasm. The hypophysis was changed into a fetid, disorganized mass. The left cavernous sinus contained a purulent, the right a solid thrombus. The ophthalmic veins were surrounded by masses of pus. The roof of the sphenoidal sinus was carious, its central part perforated.

12. Observation of Ortman (1890).—Male, 13 years old; attacked with fever, chill, headache, followed by symptoms of meningitis and death. Section showed thickening of the dura around the sella turcica; between dura and bone a brothlike fluid containing blood. The bony substance of the sphenoidal sinus was a dirty yellow color. Both sinuses were filled with pus. Of great interest in this case was the microscopic examination of the mucous membrane and the bone. In the membrane and periosteum of the sinus were numerous diplococci between pus cells. The same cocci could be demonstrated in the bone and in the membranes of the brain. It was thus shown that the infection of the meninges was by direct continuity. By the inflammation and collection of pus in the sinus were produced purulent periostitis and ostitis, which passed through the bone to its cerebral surface, caused a periostitis there, and attacked the dura and pia. In Hajek's collection of cases the half has probably not been told, and many deaths of obscure headache due to accessory-cavity diseases have probably not been recorded. I am convinced that headaches of nasal origin should be as carefully looked into as the same symptom in mastoid disease. We do not hesitate to open the mastoid for exploratory purposes; why, then, should we fear to open the frontal sinus to find what the condition of that cavity is—whether there is bone necrosis, which, if present, must almost certainly lead to a serious brain complication? I believe the time is not far distant when the rhinologist will make exploratory operations just as the aurist and the abdominal surgeon. In conclusion, I wish to emphasize the fact that headache not relieved by intranasal treatment is a dangerous symptom, and should be given the careful consideration which it deserves.

TRAINING THE SLIGHTLY DEAF.

By A. K. Bond, M.D.,
Baltimore.

"It's warm," you remark innocently to the *vis-a-vis* guest at the dinner table. "Eh?" he responds, putting his hand to his ear and diverting every eye at the board to you. "It's warm," you insist, while you flush to the lone hair on your bald spot. "Ham? No, I never eat ham." "It's warm!" you shout in desperation. "Oh!" he remarks placidly; "I'm just a little hard of hearing," and the table relaxes into a refreshing grin at your expense.

He won't use an ear trumpet; not *he*. He can "hear very well when people speak distinctly."

On another occasion you sit opposite a cultured gentleman who converses with you in a quiet tone (with slightly peculiar timbre, it is true) of politics, literature, the current gossip of the day, and on rising from the table you are astonished at the statement of your host that your agreeable companion is stone deaf, never heard a word you said, and "couldn't hear a cannon go off. He reads by the lips entirely, is a graduate with credit of the university, having recited, as others, in class without private coaching, and is a successful business man."

The man who is totally crippled in his hearing has by patient training for his defect become an ornament to society, a delightful comrade, a thrifty man of affairs. Given sufficient light to see the lips, and companions who know how to speak rightly—not down in their stomachs or back at their pharynxes—and he asks no odds of anyone on any theme of polite conversation.

The man, on the contrary, who retains much of his hearing power has, by neglecting lip-training, become a humiliation in social gatherings, and in private strains the voices and temper of his acquaintances to such a degree that he is more and more shunned by all. Shut out from social fellowship, for which often he has an inordinate longing, he is liable to become morose, bitter in attitude toward his fellow-men, a failure in his business career.

My contention is that this is not right; that it is not necessary. *The slightly deaf also should be trained to lip-reading.*

Every person "hard of hearing" becomes, in fact, after awhile an amateur lip-reader. Notice how eagerly he watches your face as you speak! How much better he hears when you look toward him! He is trying to read your *face;* that is what every lip-reader does, only he does not know the key to the speaking face—the lips.

He has the money, the time, the capacity for this special training. Why is he not trained? The only answer I can find is the rather surprising one—"nobody ever thought of it!" A life blighted and no one ever thought it worth while to save it from the blight!

"Lip-reading is difficult." So are many other desirable things—scientific football, the theory of music.

"To some it is impossible." So are the other things above mentioned, but an observing student of good mind can learn them usually.

"It takes a long time." About an hour's lesson three times a week for a year will give a first-class start, and that is as much as can be said of piano practice—yes, very much more. To the amateur lip-reader referred to above it will seem a mastering of the whole subject. Of course, these lessons must be supplemented by home practice, but that is usual in special studies of any sort.

"But a course of study is *very* expensive." About $1 a lesson, even $3 sometimes—just what we pay for training our daughters in piano or vocal music, which they usually lay aside in later years.

"I am too old." You are just as old as you *are,* not as old as the calendar says. If you have let your mind go to seed, get rutty, mildewed, become covered with barnacles, you had better not try lip-reading; otherwise you have a first-rate fighting chance at *any* age. If you keep at it, it will make you younger, keep your brain cells flushed with fresh blood, give you at least a hobby for your advancing years to protect you from morbid *ennui.*

There are some other questions that naturally arise, the answers to which can only be gained through experience. It may naturally be asked whether a person who partly retains his hearing will be helped or hindered in his lip studies by his residue of hearing. An expert friend informs me that the partly-hearing student is not so likely to be earnest in his efforts to lip-read, but that if he is, his hearing will be a help to him in his studies. If he finds it a hindrance in his lessons, he can easily stop his ears for awhile and be then in a state of total deafness. The hearing that he *has,* however, will help him to the niceties of words which a totally deaf lip-reader may miss, for the latter does not read letter by letter, or even word by word as a child conning its primer. He reads on the lips the chief words or letters, and leaps from them to the construction of the sentence or to the comprehension of the thought. Little points may be lost or overlooked, and to these the partially deaf person can by the aid of a trumpet give attention, becoming thus a more accomplished reader than the other. Earnestness in study is a matter of individuality and consciousness of need. If the advantage of the training to the partially deaf is certain, earnestness will not be lacking in the thoughtful people.

Another natural question is whether lip-reading would increase or lessen the amount of hearing still possessed. In itself it would probably have no effect, but by enabling the patient to maintain his place comfortably in society, in broadening his interests, in overcoming the tendency to mope it would aid his crippled hearing. Moreover, as we hear ultimately with the brain, and as anything which cheers and gives hope (how well the quacks know and utilize this!) improves the brain action and the whole hearing, it is likely that the knowledge that one possesses a safeguard against increasing deafness-isolation and a guarantee against becoming a social

nuisance will tend to retard deafness and conserve such hearing as is left.

At present it is almost certain that a sufficient number of trained teachers is not obtainable for the partially deaf in the community should they desire instruction. The totally-deaf lip-reader is probably not a suitable instructor for the partially deaf, as he lacks the niceties of speech. But the enormous number of pupils, if training for the partially deaf should ever become popular, as I trust it will, and the easy livelihood which could be earned by a good teacher, would in a few years produce hosts of instructors. I am informed that lip-reading is still in a crude utilitarian stage, its students being, as I have said, insensitive to possible niceties, and no exhaustive study having been made of it. For instance, the classification of words and their listing into difficult and easy classes has been almost wholly neglected. With the teaching of the partially deaf by the partially deaf a great development of the science may be expected with consequent simplification of its study. At present the methods and results of even many large schools are very imperfect, and good teachers are very rare. It is doubtful whether in a city like Baltimore there is even one teacher competent to instruct with leisure to take private pupils.

As a physician the writer has been very much impressed with the hopelessness of treatment for chronic partial deafness. He sees patients wander from specialist to specialist, and, when the specialists refuse longer to encourage them, from one advertising quack to another, hearing a little better for a week or so under each—as long as the brain tonic, hopefulness, lasts—spending great sums of money in the total and coming out in the end a little deafer than when they began. Would it not be much better if the major part of this money and time were spent in lip-reading studies? If this were done, they would come out just as before, but all of them better listeners and many of them completely at their ease in society.

The faith of the chronic partially deaf in the new specialist or quack is very pitiful. His perseverance in following their directions is simply marvelous. Why may not this perseverance and faith make him an expert lip-reader? Ear trumpets and drums and tubes are very unsatisfactory makeshifts. They are a nuisance that very few, even of those who benefit by them, can tolerate. Patients come down finally to letting their friends shout. The physician dreads especially the consultation over his partially-deaf patient, which often, even with a trumpet, compels him to shout so that the whole household is taken into his confidence, makes him angry and voice-tired, and subjects him to indignant remonstrance from the patients who come after, who protest vehemently that they are *not* deaf and don't want to be shouted at.

What the advantage of lip-reading would be he realizes when, after he has shouted in vain at a partially-deaf patient, some member of the family whose face and method of speaking are very familiar to the patient approaches and conveys the necessary information in a quiet voice without difficulty.

PROCEEDINGS

OF THE

MEDICAL AND CHIRURGICAL FACULTY

OF MARYLAND

Editorial and Publishing Committee.

ALEXIUS MCGLANNAN, M.D. HENRY O. REIK, M.D. JOHN RUHRAH, M.D.

Secretaries of the County Societies are earnestly requested to send reports of meetings and all items of personal mention and of local or general interest for publication addressed to Dr. Alexius McGlannan, 847 North Eutaw Street, Baltimore.

COUNTY SOCIETY MEETINGS.

ALLEGANY COUNTY.

A VERY interesting meeting of the Allegany County Medical Society was held April 3 at the Allegany Hospital, Cumberland. The following program was carried out:

Regular order of business.

Reading and discussion of papers.

Papers: "On the Importance of the Radical Cure of Hernia and the Technique of Several Operations," Dr. W. H. Noble; "The Early Diagnosis and Treatment of Variola," Dr. C. L. Owens. Report of several interesting cases of removal of foreign bodies from the eye.

Two new members were admitted at the meeting. The flourishing condition of the society is a great credit to Drs. E. T. Duke and Wm. R. Foard, the president and secretary.

The next meeting will be held in Cumberland on July 3.

HOWARD COUNTY.

A VERY interesting meeting of the Howard County Medical Society was held April 3 at the Howard House, Ellicott City. The topic for discussion was pneumonia. Papers were read by Drs. T. B. Futcher and D. Street, members of the Baltimore City Medical Society.

Drs. C. D. Rollins, Guilford, and W. C. Stone, Ellicott City, were elected to membership at this meeting.

MONTGOMERY COUNTY.

THE annual meeting of the Montgomery County Medical Society was held in the Circuit Court room, Rockville, Md., Tuesday, April 17, 1906.

There were present Drs. A. C. Harrison and W. E. Magruder of Baltimore, Drs. Stuart Muncaster and Morgan of Washington, Dr. J. W. Chappell of Tenley, and the following from Montgomery county: Drs. Otis M. Linthicum, Edward Anderson, Claiborne H. Mannar, William T. Pratt, I. N. Simpers, William E. Magruder, Augustus Stabler, Roger Brooke, James E. Deets, John L. Lewis, William T. Brown, William L. Lewis, Upton Nourse, Charles Farquhar, Horace B. Haddox, French Greene, Vernon H. Dyson, and Edward Wootton.

Dr. Edward Anderson of Rockville was elected president; Dr. James E. Deets, vice-president, and Dr. John L. Lewis of Bethesda, secretary-treasurer. Dr. Roger Brooke was chosen to represent the society at the annual meeting of the State Medical Society in Baltimore, with Dr. James E. Deets as alternate. Dr. Otis M. Linthicum of Rockville and Dr. French Greene of Brookeville were elected censors for three years and one year, respectively, the other censor being Dr. William L. Lewis of Kensington, who holds over. Drs. Augustus Stabler of Brighton, Elisha C. Etchison of Gaithersburg, and William T. Pratt were unanimously elected to membership.

A resolution was adopted fixing the fee to be charged by members of the society for examining an applicant for life insurance at $5. It was decided to hold the fall meeting of the society at Germantown.

Papers were read by Drs. A. C. Harrison of Baltimore, Augustus Stabler of Brighton, Roger Brooke of Olney, and Vernon H. Dyson of Laytonsville.

Somerset County.

The Somerset County Medical Society held its biennial meeting at the Hotel Crisfield April 6. The session was one of the most interesting held in years. Dr. Wainwright of Princess Anne was elected president, and Dr. Ralph Hoyt of Oriole, secretary and treasurer for the ensuing year. Dr. C. E. Collins of Crisfield read an interesting paper and presented a case illustrating his subject.

ANNUAL MESSAGE TO THE HOUSE OF DELEGATES AND MEMBERS OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

Gentlemen:

You will please pardon my departure from the time-honored custom of your president addressing you upon some scientific subject on the occasion of your annual meeting, but the vast increase in the duties of the office incident to the reorganization of the Faculty has left but little time except for the performance of these duties. Indeed, these changes have entirely revolutionized the past order of things, and he now has to appear in a new *rôle*. Hereto-

fore the office has been one of dignity, honor, and passive indifference, except for a few time-honored and routine duties; now it is one of activity, energy, anticipation, alertness, and hard work. The number of important subjects that should engage the earnest consideration and attention of our profession has multiplied so greatly that I thought the presentation of a few of them would redound much more to the future welfare of the Faculty than anything that I could say on a scientific subject.

When I accepted the position of your chief executive, which you so kindly intrusted to my care and management, I announced to you upon the first occasion that offered, at the annual banquet, that my chief aim and object should be to unite and thoroughly organize the profession of this State. To this end I bent all my energies, and have earnestly tried to make the Faculty a truly representative body of the profession of this State. While what I have accomplished is far short of what I had hoped, yet I trust that many of the seed sown may yet be gathered in the harvest of some succeeding secretary's report, and hope I have laid a sure and comprehensive foundation for my successors to build upon.

The first subject that I wish to submit to your consideration, and which I think overshadows all others in importance, is the imperative need for a thorough organization of the profession of this State and to make of it a thoroughly alive and active body of men. What has been done in this direction since the reorganization was begun two years ago is merely the beginning of what should and can be accomplished. We should not cease our efforts in this direction until every reputable member of the profession of this State is a member of his local society and, by virtue of the same, of this Faculty, nor should we let prejudice or differences of opinion about non-essentials keep from our ranks those who are striving honestly for the same end, and are well equipped scientifically. The science of medicine is too broad and should be too liberal to be fettered by such restrictions. We do not begin to realize how much we are losing every day for the want of it. There is not a single step to be taken forward that is not hampered and handicapped by it. Nor is this to be accomplished without earnest and hard work, not only by your officials, both general and local, but by every individual, and it should be the avowed purpose of every member that he will bring into the organization at least one new member every year until they all are in.

It needs just this personal appeal to accomplish such a task, and I appeal to every one of you not only to make the effort, but not to rest satisfied until you have accomplished the same.

If we compare our organization with others, even those we consider far beneath us in dignity and importance, the disparity against us is appalling, and when we oppose them we are made to feel at once our utter helplessness against such an organized foe. (Can refer here to the Maryland Pharmaceutical Association and our fight with them against the patent-medicine bill that was brought up at the last meeting of the State legislature.) To further this

object I would earnestly recommend to my successors in office, at least for several years to come, that they should visit each county society once during their official terms, and to the councillors each association in his councillor jurisdiction once, or oftener as occasion may require, each year. This gives the opportunity for such officials to judge best of the needs of each local society, of the members on whom they can best rely for help, and it encourages and stimulates every individual member. Please bear constantly in mind that without a thorough organization we are a veritable hulk on the sea, at the mercy of every wave and tide, and will never be able to assume or hold the position or influence to which we are entitled in the social, moral, or political world.

Next in importance for your consideration is allegiance to our profession. This very essential duty has been entirely too much overlooked in the past, and has been eclipsed by our obligations to our patients and personal advancement. While I would not belittle for one moment our duty to our patients, which from every standpoint should claim our first attention and consideration, yet allegiance to our profession should be a very close second, and is the sheet anchor in any plan for thorough organization that we may contemplate.

The advancement of the interests of our profession as a whole means more than we can begin to appreciate—the advancement of our individual interests. We have only to be reminded of the cardinal principle on which our grand republic is founded, and on which it stands firmer today than when the sentiment was first enunciated in its application to our form of government—"United we stand, divided we fall." The principle is just as applicable and essential to the future success and standing of our profession as it is in the affairs of State. It is this allegiance that should animate us all, and especially our officials, in the discharge of their official duties. This suggests the great necessity for care on our part in the selection of our officers, both general and local. I fear that in the past it has been too often done on the impulse of the moment, without mature consideration, and without regard to their fitness or willingness to properly discharge the duties of the office for which they are chosen. We should first of all remember in this connection that this is not a time to hand around honors; the great need of the hour is for men who are willing and able to work. I care not whether he is old or young, or how long he may have been a member of the organization, the only shibboleth should be, is he willing and is he capable of doing the work. Pursuant to this idea, I hope there will be introduced at this meeting a new by-law providing for the appointment of a nominating committee. With all these requisites complied with in our officials, there still remains the urgent need for every man to put his shoulder to the wheel to help on in this noble work. To one who is in the least alive to the needs of the hour it is amazing to me how any member of our profession can be content to remain out of his local and State society. The difficulty should be in keeping him out if there was any just cause.

Let us, then, press urgently forward with these ideas and hope for a united profession, trusting for a full realization of our hopes in the near future, and it will surely come if we will it and work for it. But as we go forth to this work let us keep before us—yes, emblazon it upon our banners; nay, more, inscribe it indelibly upon our hearts—that grand motto bequeathed to us by that honored and beloved member who has done more than any other to bring about a realization of our hopes for a united profession, remembering that it is the open sesame to all obstacles that beset us, and should ever be with us when we rise up and when we lie down, when we walk by the wayside or when we converse with our friends in the market-place—that glorious sentiment, "Unity, peace, and concord."

I would urgently call the attention of the Faculty to the great need of their taking immediate steps to erect a new home. Our present quarters are entirely inadequate for our needs, our valuable library is in imminent danger from fire, and we need a more imposing and commodious building that would becomingly represent the honor and dignity of our profession, and at the same time be an attractive and comfortable home for its members. Such a structure would be a great attraction to new members, indicating thrift, enterprise, and stability in our organization. We should have sufficient accommodations not only for the largest of our own public meetings, but it would be a great advantage to us in many ways if we could attract and accommodate all public gatherings that are held for the consideration of subjects that are allied to medicine, such as the exhibition on tuberculosis, the lectures that are now being held on the pure-milk supply, the meetings of the State and national boards of health. All such meetings that now have to be held in McCoy Hall should be held at the Faculty Hall. It not only gives us the opportunity to keep in close touch with all such organizations, which should be encouraged for their broadening effect in the management of our own affairs, but strengthens and extends our influence.

Of so much importance do I consider this subject that I have requested Dr. Reik to submit specific recommendations on it at the close of this message, and at the same time to submit a report of what has been accomplished by the committee that was appointed to collect money for the Osler Testimonial Building Fund.

Another very important subject that deserves worthy consideration from this Faculty is the dispensary abuse. I recognize the Herculean task I am advising you to undertake, but if so great for an organization like this, how utterly hopeless must it be to the individual members of our profession who have felt the iron heel of this monster! This should be an additional reason why we should all unite and stand by each other to meet and overcome such foes. We recognize in this evil corporate power, wealth, and influence. But is it right for those of us who have been so favored by fortune as to have back of us an influential institution of learning or a large hospital with all of its advantages that we should deny

to our less favored brothers the "crumbs that fall from our table?" Are we so little alive to the interests of our profession—nay, even of our individual interests—as to encourage pauperizing the public? These seem to be astounding statements to make to thoughtful and prudent people, but can any of us deny that such an evil does exist, and that to an alarming extent, in every dispensary in this city—yes, and country, wherever there is a hospital to be filled or a class to be instructed? This abuse has even been urged as an objection to the inauguration of county hospitals. Who can deny that at every one of our dispensaries, particularly those of a high class, patients come daily for free treatment who are abundantly able to pay for such services, and yet there is rarely a question asked as to their right to receive charity. I have heard of several instances where one member of a family has paid a liberal fee for the performance of a surgical operation, when shortly after another member of that same family has gone to the dispensary, and from the dispensary to the hospital, and had a similar operation performed free of all cost. I have heard, and so have most of you, of several physicians—nay, of not a few—who had a very bright future and a large practice until a dispensary and hospital were opened nearby, when they can now barely keep body and soul together, so few and far between are their patients. And what is the excuse for this wasteful extravagance, this profligacy? That the schools may be supplied with clinical material, or that the specialist may have the opportunity to see and treat some rare case. As legitimate as the first excuse may appear, do we not all know that there is an abundance of clinical material that goes to waste daily in nearly every dispensary, and that little, if any, of it is thoroughly worked up in the hurry to treat the multitude?

Gentlemen, these are thoughts for serious reflection; they are attracting the attention of the profession in different parts of the world, and steps are being taken to correct the evil. Let us not lag behind, but be in the front ranks, especially when there is a brother to be rescued. That some definite and well-directed action in this matter may be taken I have requested Dr. Hiram Woods to submit some recommendations at the close of this message.

The publications on medical topics that appear so frequently in the lay press are often so exaggerated, ludicrous, and misleading to the public that the matter should by all means be taken in hand by the medical profession and an earnest effort made to correct and improve them. I advocate very strongly efforts to enlighten the public through this channel on matters that relate to public health, hygiene, infection and contagion, but such knowledge should be correct and should come through the proper channels, or it is almost, if not quite, as bad as total ignorance. I am confident the managers of the lay press will gladly co-operate with us in any reasonable plan to give the public the correct information on such subjects. I would therefore suggest to the Faculty the advisability of appointing a committee of three, to whom these articles might be referred for correction before they appear in the public press. It would not

entail much hard work upon them, and they would certainly confer a great benefit upon the public as well as elevate their profession in the eyes of the people.

Akin to these misleading statements that appear in the public press, but of far greater importance from a moral standpoint, are the unblushing, immoral, and illegitimate advertisements that appear in the daily press, tempting the public to become guilty of the most grossly immoral practices that strike at the very foundations of society and attempt to pervert the natural order of things. To continue to allow such practices to go unchallenged is a reflection upon decent society, and especially upon the medical profession, who more fully appreciate the depth of such infamy. While it requires legislative enactment to deal with the authors of such obscene advertisements, the last-named committee might be charged with the additional duty of drafting a bill to be presented to the next annual meeting of the House of Delegates, and, if approved by that body, to be then given in charge of the legislative committee for presentation to the next meeting of the State legislature.

I should like to see our city and county sections of the Faculty encourage the practice among their members of giving public talks and lectures to gatherings of lay people on subjects pertaining to public health. Our profession has been entirely too modest in their efforts to enlighten the public in this manner, apparently seeming to think it either beneath their dignity, an assumption on the part of the people to expect it, or perchance the fear of overstepping the bounds of propriety and ethics. Yet the people are thirsting for such knowledge, and it is proper that they should have it, provided that the information given them is correct, and this is best assured if it comes through the proper channels. I feel sure that it will be beneficial alike to both; it will elevate the physician in the sight of the people; it will increase their dependence upon him, and will do very much to uproot that old yet groundless suspicion that the people have so long cherished, viz., that the physician always has some ulterior motive or selfish end whenever he attempts anything for the public good.

Medical education should certainly receive very mature consideration from this Faculty. It would be the recognition by them of their special prerogative to supervise and direct the qualifications and attainments of the individual for the good of the body corporate. The national body, the American Medical Association, has already recognized her rights in this matter by the appointment of a council on medical education, and has asked each State association to co-operate with her in carrying out the objects of this council by the appointment of a subcommittee. The object of this council, with its subcommittees, is to establish a uniform curriculum in the medical schools throughout this country, to elevate the standard of preliminary as well as of medical education, and to harmonize and unify the various State boards of medical examiners, which heretofore have been such a constant and prolific source of annoyance to the profession, by restrictions to their move

ments from place to place. This seems to me to be a very wise step in the right direction, for it is time that our profession as a national body should take upon itself the direction and management of its own affairs in every detail, and not to delegate such duties to organizations not under its direct control. It has only been very recently that I have been officially called upon to name such a subcommittee to this national council, and in doing so I named Dr. William H. Howell as its chairman, whom I have requested to speak to you more specifically upon this subject and to report the results of their efforts in this work at the close of this message.

Medical Legislation.—It has now been about 14 years since I first joined hands with other members of this Faculty in our efforts to direct medical legislation in this State, and I have been in continuous service ever since. I have therefore had the opportunity of judging of the causes of our frequent failures, which have greatly exceeded our successes. The chief cause has been, and it is very patent, the need of thorough organization and concerted action. We need most of all the influence of the members of the city and county societies on the members of the legislature from their respective localities, and we cannot bring this influence properly to bear without a thoroughly organized society in each county and concerted action between such local and the State societies. While this need has been partially supplied by the organization of societies in every county in the State, yet in many instances these are not in such perfect running order nor sufficiently active to be of much service in this work. We sincerely hope at the meeting of the next legislature to be able to bring this influence to bear in full force. Another very fruitful cause for our failures is the need for a very much more thorough consideration of the subjects on which we ask legislation. The subjects should be thoroughly gone over, all objections within our own ranks satisfied or harmonized and the opposition that might come from other organizations whose interests may be injuriously affected by such legislation removed or satisfied. This was plainly shown last winter in our efforts in behalf of the city section of the Faculty to have the formula bill for patent and proprietary medicines passed, in which the State Pharmaceutical Association fought the bill fiercely until after a conference with the committee from the city section, which, unfortunately, came too late to be of service to the passage of the bill. We would have had a strong friend instead of an enemy at court had the conference been held at the proper time. I would recommend for the future that we take time by the forelock and begin at once to prepare our bills for the next legislature.

To this end let committees be appointed at this meeting to take charge of the preparation of prospective bills that are likely to be presented at the next legislature, and require them to report fully at each annual and semiannual meeting. After they have been gotten thoroughly in shape, let them be reported to a meeting of each county society and all conflicting interests harmonized; then, and then only, will we be in a position to secure success. I would

urgently recommend, in addition to what has already been advised in this connection, that we so enlarge our legislative committee as to include one member from each county in the State and one for each legislative district of Baltimore city.

I think the time is ripe for us to extend our borders, to reach out and affiliate with certain cognate branches of medicine. I refer especially in this connection to dental surgery. They are instructed in their fundamental studies in our medical schools; they recognize as well as ourselves the necessity for a decided elevation in their standard of requirements, both in their preliminary and professional studies. They are accepting gracefully the efforts that are being made for them in this direction, and it does seem to me that we might encourage them by a more generous recognition of our relationship, they being probably our nearest professional kinsmen. There are great possibilities in the future for dentistry from a scientific standpoint, and they are destined to add very much more to the good they have already conferred upon mankind if they are educated to the point of fully appreciating the scientific problems that are involved in their branch of surgery. The elevation of their professional standing would reflect very much more credit upon the medical profession than we now appreciate. The association of dentists in this State request that the Faculty shall set aside a room in our Faculty Building for their special use, to be used as a reading-room, for the safekeeping of the library they are trying to collect, and that they may be allowed to use our hall for their public meetings on the same terms that sections of our Faculty now use it. I hope the Faculty will not only see its way clear to grant this request at this meeting, but will also propose to them to become a section of this Faculty and exchange delegates with them at our annual meetings.

The question of the propriety and advantage of the Faculty undertaking to publish its own journal should receive very mature consideration from the Faculty at this meeting. Probably the most important advantage to be gained by such an undertaking would be its power to control the character of advertisements that appear in it. The medical profession has been justly and severely criticised for its laxity in allowing all kinds of questionable advertisements to appear in its journals and the encouragement they have thus given to the most arrogant forms of quackery. The reformers are still forcing the fight against such practices until now they have succeeded in having the *Journal of the American Medical Association* to appear at the beginning of its next fiscal year with a clean sheet, purged of every objectionable and questionable advertisement. The American Medical Association has a right to expect every official journal of each State organization to follow its lead, and the publication of our own journal is the only means by which we can do so. I have requested Dr. Reik to present the pros and cons of this question to you in every detail at the close of my message, and have requested him not only to present you a feasible and practical plan by which it could be managed by the

Faculty, but to submit proposals from reliable publishing firms and the cost of running it.

As to the effect of such action on the future of the MARYLAND MEDICAL JOURNAL, I do not think the question is pertinent to this Faculty, it being our duty first and at all times to consider the greatest good that will accrue to the greatest number of our profession.

In matters of public health and hygiene I have long thought there should be a closer relationship and greater dependence between the profession, the State, and local boards of health. This applies even with greater force to the counties than to the cities, where the conditions in this and every other respect are much better. Not meaning for one moment to reflect upon the State Board of Health, which has done most excellent work, and should be heartily congratulated for what it has accomplished, yet in several instances the appointments of county health officers have neither reflected credit upon themselves nor the medical profession. To be sure, the State Board of Health has been restricted in its appointments by the present law, which gives such power to the boards of county commissioners, and even if the Board of Health could have made its own appointments the past unorganized and inharmonious condition of affairs in our profession would probably have resulted in as bad appointments and greater discord. Wherever the fault lies, the fact remains that in certain instances the local health officers in some of the counties are not practicing physicians. In no appointments for such local positions is the profesosin ever consulted, and we have the anomalous and humiliating condition of having as our superiors in matters of public health, to whose dictation and direction we have to submit and whose mistakes reflect upon the reputation of our profession, men for whose appointment we are not in the least responsible, and in a few instances those who feel no responsibility to uphold the reputation and dignity of our profession. This should not be the case, and cannot continue to be so where the profession is properly organized and has the proper self-respect. In addition, the number of local health officers is far below the needs of each locality, and when the remuneration they receive is compared with the work expected of them the comparison becomes ridiculous. I would therefore urge upon the Faculty the necessity of making the proper overtures for adjusting this condition to the State Board of Health, and after mutual agreement to draft a bill to be presented to the next meeting of the legislature which will recognize the rights of the profession in making these appointments, and at the same time may recommend some feasible and practical plan by which the number of local health officers may be so increased that they may be able to do more efficient work and may receive compensation that is more commensurate with the services rendered and more in keeping with the dignity of our profession. I would advise that the local branches of the State Faculty should each take in hand the management of all professional matters within their respective

boundaries. Whatever happens for the weal or woe of their profession within their jurisdiction should be regarded by them as their own family affair, for the proper management of which their allegiance to their profession, their reputation, and their interests are all at stake. They are the proper persons to look after the invasion of their territory by quacks and charlatans; it is their ox that is being gored; they can most readily secure the necessary evidence against such intruders, and under the protection of their local society can avoid appearing in person against such an individual. In order to carry out such a procedure in a private manner it is only necessary for each society to have its attorney, the report of the case with the evidence to be submitted to the society, and the secretary instructed to hand the case over to their attorney. With this idea thoroughly inculcated in the minds of the members of the profession there would soon be little or no trouble to keep in thorough working order all the county societies, for there would soon be work for all and all would become interested.

The Faculty should encourage the establishment of hospitals in the county-seats at most, if not in all the counties of the State. This advice, however, should be taken with a certain reserve. The county hospitals that have been established up to this time, I am very sorry to say, have in most instances been rather a bone of contention than a bond of union among the physicians of such localities, the chief cause of which, I believe, has been that the establishment of the hospital has preceded the organization of the profession. With the profession properly organized they should take the initiative in the establishment of such hospitals; all should act in concert, and insist that the hospitals should be placed under the control of the county medical society and at the disposal of every reputable and legally-registered physician in that county. With such a just and liberal organization there could be no fault found; there would be no occasion for contention between the outs and the ins, for they would all be in. I feel sure, under such conditions, the county hospitals would soon become a great blessing to the public as well as to the profession. As every physician could have the assistance and support of the resident staff and nurses, it would soon stimulate and encourage them to do far better work, and the public would reap the benefit in having better doctors, and it would furnish a center from which to draw trained nurses.

The progress made in the growth and improvement of the Faculty during the past year has been very satisfactory, as I think you will readily admit when the reports are read. As will be seen by reference to the secretary-treasurer's annual report, there has been collected for the eight months ending with January 1, 1906, which now marks the beginning and close of our financial year, $3899.40, an excess over the previous year of about $1000. Our membership has increased very largely, especially in the city, and it now numbers 929, against 858 in April, 1905. But we cannot make a just comparison with last year in this particular, because many of the

names reported by the county societies last April as being members never availed themselves of the privileges of membership, and consequently were dropped from the roll. I have personally visited 15 of the 24 local societies during the past year, and several of them more than once, and am glad to be able to report them in as satisfactory condition as could be reasonably expected for the short time which they have been organized. As a general thing I found the members alive to the advantages of organization, but lacking in disposition and energy to push the work. They seem to need an active, wide-awake young man, a good wheel-horse, as it were, to start the load and put the ball in motion. Two such men in each local society, one to act as president, the other as secretary, would soon bring about such a revolution in the existing condition of things that in a few years we would scarcely recognize our old Faculty. I am very anxious that local societies should bear these qualifications constantly in mind in the selection of these two officials and get away from the old idea that these positions are the cozy corners for the ancient and honorable. I fully realize that most, if not all, the suggestions that I have made to you in this message have been current thought with many of you for some time past, but it occurred to me that we have probably already thought of them a little too long and too much, and it is now high time for us to act. I hope the Faculty will promptly take the suggestion.

Supplemental reports will be made at the close of the president's message on the following subjects by the following members of the Faculty:

1. Medical Education.—Dr. W. H. Howell.
2. A New Home for the Faculty.—Dr. H. O. Reik.
3. Dispensary Abuses.—Dr. Hiram Woods.
4. The Advisability of the Faculty Publishing Its Own Journal.—Dr. H. O. Reik.

AN ANALITICAL STUDY OF ACUTE LOBAR PNEUMONIA IN THE JOHNS HOPKINS HOSPITAL FROM MAY, 1889, TO MAY, 1905.

By Dr. J. A. Chatard,
Assistant in Medicine, Johns Hopkins University.

The following statistics were gathered from the records of the hospital for the past 16 years, during which time there were 658 patients treated for pneumonia, excluding ether pneumonias. Of this number 200 died, a percentage of 30.39, though if terminal pneumonias are excluded the number of deaths is 165, or 25.07 per cent.

The number of cases increased up to 1899, but in 1900 and 1901 there was a sharp rise in the number, followed by a large drop during 1902 and 1903, followed again by a rise in the number during 1904 and 1905. During 1904 there was a general increase in the cases as ascertained by comparing other records.

Age.—The greatest number of cases occurred in young adults

from 20 to 40 years old—55 per cent. In patients from 20 to 30 years old 22 per cent. of the cases occurred, and 18 per cent. of the cases occurred in patients younger than 20 years. A comparison of the mortality with this age table is interesting. In early adolescence the mortality is low—4 per cent.; during the period of greatest frequency, 20 to 30 years, it is 44 per cent., and after that period we find a steady rise to about 80 per cent. of deaths.

Sex.—The male patients far outnumber the female patients, being 533, with 154 deaths, compared with 125 females, with 46 deaths. The death-rate in the females far outnumbered that in the males—males about 28 per cent., but females about 36 per cent.

Race.—White, 238 cases, with a mortality of 30 per cent.; foreign, 170 cases, with a mortality of 29.4 per cent.; black, 250 cases, with a mortality of 31.2 per cent.

Seasonal Variation.—From January to March there is a rise in the number of cases, when the greatest number occur; while during the summer months there is a great diminution in the number of cases, although the mortality is increased.

Occupation.—Outdoor occupations, 347 cases, with 34 per cent. mortality; patients with indoor occupations, 274 cases, with 26.6 per cent. mortality. Alcohol was admitted by 426 patients, with 30.9 per cent. mortality.

Previous Attacks.—One previous attack of pneumonia was stated by 88 patients, two previous attacks by eight, three previous attacks by three patients, and one patient claimed to have had four previous attacks.

One hundred and twenty-one of the patients were exposed to bad weather, eight to extremes of temperature; there were eight cases in nurses and orderlies, and three cases among doctors. As regards family history, there was a history of tuberculosis in the family in 11.3 per cent. of the patients. All tuberculous pneumonias were excluded from these statistics.

Symptoms.—The most frequent symptoms were pain in the side, chill, and cough. Abdominal pain was present in 51 of the cases, or 7.7 per cent. The pulse was considered slow when it registered below 90 beats per minute, and of the patients exhibiting this pulse-rate 13.6 per cent. died. Patients with a medium pulse-rate, below 125, showed a death-rate of 14.9 per cent., this medium pulse-rate occurring in 50.7 per cent. of the cases. Patients with a rapid pulse, over 125 per minute, showed a death-rate of 49.4 per cent.

Temperature.—This was subnormal, below 98.5° in five cases, with two deaths; between 100-102° in 39 cases, with 13 deaths; between 102-104° in 49 cases, with six deaths, and between 104-106° in 384 patients, with about 27.7 per cent. mortality. The temperature was above 106° in 49 patients, with 55 per cent. of deaths. The admission temperature was generally between 102° and 104°, though in one-sixth of the patients it was below 100°.

Respiration.—The respiratory rate was rapid in the majority of the cases, those patients exhibiting labored respiration and cyanosis having a high mortality, about 43.2 per cent.

Sputum.—The sputum in the majority of the cases was mucopurulent, tenacious, and rusty. In 93 cases the pneumococci were found in the sputum.

Involvement.—In 354 cases the right side alone was involved, with a mortality of 26.5 per cent.; the right lower 139 times. The left side was involved alone 168 times, with a mortality of 20.2 per cent. In double pneumonia the mortality was about 54 per cent.

Pneumococci were isolated from the blood in 25.2 per cent. of the cases, and of these 69.1 per cent. died. The joints were aspirated in three cases and the cocci obtained in one case.

Complications.—There were 338 cases of pleurisy, with a mortality of 51.2 per cent., empyema occurring in 27 cases. Pericarditis was present in 35 cases, mortality 82.8 per cent.; endocarditis 13 times, mortality 76.9 per cent, and jaundice in 76 cases, with 21 deaths. This latter complication—jaundice—varied in frequency with the years; in 1901 there were 28 cases, 13 in 1902, and only six in 1900, though there were the greatest number of cases during the latter year. There were 13 cases of meningitis, all fatal.

The greatest number of cases showed a leucocyte count of between 25,000 and 30,000, with the lowest mortality—19 per cent. The highest mortality occurred among the cases with the lowest leucocyte counts (below 10,000). Albumen was present in the urine of 541 cases, casts in 107 cases, and the diazo reaction in 16.8 per cent. Bile was present in 34.3 per cent.

Peritonitis, tonsilitis, and arthritis occurred each three times. There were eight cases of septicemia, 149 cases of delirium, with about 47 per cent. mortality, 12 cases being admitted with delirium. Herpes was noted in 180 cases and not noted in 265. Where a note was made herpes occurred on the lips in 87 patients, on the nose in 43, on the ears in 3.

Among the special features, delayed resolution was noted in 35 cases, and relapses occurred in 5 patients. The average blood pressure was between 125 and 155 mm. of mercury. Terminal pneumonia occurred 35 times.

Defervescence was considered as a "*true* crisis" when occurring in 12 hours or less; "*protracted*" occurring in from 12 to 24 hours. True crisis occurred in 21.6 per cent., and it was protracted in 15.5 per cent.; there were 17 cases of pseudocrisis. The crisis was usually associated with a fall in the number of leucocytes. The crisis usually occurred from the seventh to the ninth day, though there was one case occurring as early as the third day and one as late as the fifteenth.

For treatment, stimulants were used in 536 cases and symptomatic treatment was employed in 460 cases. Measures employed were the ice bag, poultices, sponges, oxygen, and in a few cases the antipneumococcus serum. The serum gave little, if any, good results.

Typhoid fever occurred in 21 cases as an associated condition, nephritis 18 times, and heart lesions occurred next in order of frequency.

NOTE.—These figures are from an abstract of a more general paper, to appear later, with a series of collected articles, entitled "Statistic in Pneumonia."

DISCUSSION.

Dr. McCrae: Complications are of little value in the prognosis of pneumonia, as Dr. Chatard's paper shows, while in typhoid fever

there are a tremendous number of complications, and yet the mortality is low compared to pneumonia. In this series there have been a comparatively small number of empyemata, and the small number (35) of delayed resolutions is surprising. Another point is the heavy death-rate with delirium, this symptom speaking for a severe toxemia. The low death-rate with jaundice is surprising.

Dr. Marshall spoke of the difficulty in diagnosing pneumonia in young children early in the disease. There is a house epidemic of 12 cases in which the young children would for two or two and one-half days run a temperature quite high and have a high leucocytosis, with no physical signs. The ratio between the rate of the pulse and the respiration, emphasized in the textbooks, proved to be a fallacy. In these cases early diagnosis was aided by the suppressed-breath sounds and a slight diminution in the expansion of the affected side, followed later by a few rales and some dullness.

CLINICAL AND EXPERIMENTAL OBSERVATIONS ON CHEYNE-STOKES RESPIRATION.

By Dr. J. A. Eyster.

THIS communication is based upon the results obtained from 10 cases in which continuous records were taken, records of the blood pressure in its relation to the respiratory change.

There were found two groups of cases—1st, cases with a rise of blood pressure and an increase in pulse-rate during the period of dyspnea, and a fall during the period of apnea, and 2d, cases with a fall during dyspnea and a rise during apnea.

In the first group there were two cases of increased intracranial tension, the first of which was admitted to the hospital with a history of left-sided clonic spasms, intense headaches, and a choked disc of the left eye. The Cheyne-Stokes breathing was marked, with periods of apnea of one minute or longer, the dyspneic periods being relatively short. The blood pressure was determined by means of the Erlanger instrument. The systolic and diastolic pressures were first determined and the instrument set at one-half the pressure between these points, when a continuous record was taken. With a fall of the blood pressure the pulse waves decreased in size owing to the diastolic pressure being removed from the point at which the instrument was set. A rise of pressure produced the opposite effect.

The following points were observed: 1st, the Traube-Hering waves disappeared with the disappearance of the periodic respiration; 2d, the relative lengths of the periods of apnea and dyspnea varied with the extent of the rise and fall of the blood pressure. would be forced to conclude there exists but the one haptophoric

Increased intracranial tension was produced experimentally in dogs by trephining the skull and screwing into this opening a canula connected to a pressure bottle that could be elevated and lowered at will, thus securing various degrees of tension. Periodic respiration was obtained and also the change in the blood pressure. A simple rise and fall in the blood pressure is not sufficient to produce these changes in respiration; the rise must be above and the fall below a certain point, *i. e.*, the point of intracranial pres-

sure. With these conditions it was found in the periods of dyspnea there was a rise of blood pressure and during apnea a fall of the pressure, the rise and fall in each case being above and below the intracranial pressure.

Tracings from the intracranial-tension cases showed a rise in the blood pressure associated with each group of respiratory movements and an increase in pulse-rate accompanying the increased blood pressure. The Cheyne-Stokes respiration in these increased intracranial-tension cases is not by any means always the typical textbook type, small groups being common, groups of two or three movements. After the disappearance of the periodic respiration there is a change in the blood pressure also.

The second case of this series, one of cerebral hemorrhage, showed the same changes described above.

In the second group of cases—eight cases of cardiac and arterial disease—tracings were shown from a case of aortic insufficiency and myocarditis. The tracings from this case showed a fall of blood pressure up to about the first third of the dyspneic period, with a lowering of the pulse-rate; then about the middle of the period of apnea there was a rise of blood pressure and an increase in the pulse-rate. A curve was also shown demonstrating that the above findings are not due to the effects of a changed respiratory rate. This tracing was taken from a normal individual breathing periodically. In this tracing an entirely different series of phenomena was observed. The periodic respiration obtained in a dog after section of both vagi was accompanied by no difference in the pulse-rate during the periods of apnea and dyspnea.

The underlying cause of periodic respiration in cases of increased intracranial tension is evidently an alternate anemia and period of blood supply to the brain and medullary centers. The former is associated with apnea, and occurs when the blood pressure is below the line of intracranial pressure. The period of respiratory activity is associated with the period of blood supply to the brain, and occurs with the rise of the blood pressure above that of the intracranial pressure. These changes in blood supply should cause an effect upon the respiratory center just opposite to those observed if the stimulus to the center were all that need be considered, as this stimulus (increase in carbon dioxide and decrease in oxygen) is certainly greatest when the anemia is greatest. Another factor has to be considered, however—a loss of irritability of the respiratory center when there is a much decreased blood supply. This irritability is periodically much reduced or lost when the blood pressure is below the line of the intracranial pressure, and hence such periods are associated with apnea. This loss of irritability of the respiratory center is also shown in brain anemia following ligation of the cerebral arteries. Entirely different conditions are present under these circumstances from asphyxia of the center following ligation of the trachea. In the latter case the carbon dioxide increases ad the oxygen decreases to an enormous extent, but the blood supply to the brain and centers is normal or increased, and the respiratory center responds almost until the death of the animal.

The explanation of the second group of cases is not at all clear at present. Mosso has recently obtained continuous records of the blood pressure in periodic respiration occurring in normal persons at high altitudes, and he distinguishes a third group of cases. This group shows a rise of the blood pressure with each respiratory group accompanied, however, by a slowing of the pulse-rate.

DISCUSSION.

Dr. Erlanger emphasized two points—first, that Cheyne-Stokes respiration was described as early as 1816 and again in 1850, and that since that time it had been investigated by scores of physiologists, but no clear cause had been given until Dr. Eyster had taken up the problem; secondly, the reasons for this was no doubt due to two causes—first, to improved methods of investigation, and second, to the assistance from clinicians and the members of the staff of the hospital. This offspring was the first to result from the union of the wards and the laboratory.

Dr. Cushing emphasized the fact that these findings were of value to the clinician as well as to science.

Normally, there are variations in the blood pressure, generally in waves, as shown by the old experiment of holding a watch just on the limit of hearing. There will be noted periods when the tick may be heard and likewise periods when this sound is lost, these periods depending upon the waves of blood pressure.

In clinical conditions these symptoms are really the first warning of a disturbed condition of the medullary centers, and are a cause for apprehension. Kocher brought this out in his studies on increased intracranial tension. He divided the condition into four stages—1st, the beginning stage, with no symptoms; 2d, the stage of compression, still accommodated for; 3d, the stage of symptoms referable to the medulla; 4th, the stage where responses do not occur if the blood pressure does change, the last stage of compression resulting in death.

In producing increased intracranial tension experimentally in dogs, if the pressure flask is slightly raised, there are no changes in the respiration. If the pressure be increased so it exceed the blood pressure, there must result an anemia of the brain, as the pressure is greater than that of the blood. What occurs is a stimulus of some sort is sent out and the blood pressure increases, and the intracranial circulation is once more restored and the medullary centers supplied with blood. This condition illustrated the second stage of Kocher's. Now, by still further raising the pressure we get a repetition of the events as seen by the examination of the animal's eyes or observing the anemia of the brain through a window in the skull. These events will occur up to a certain pressure when you obtain the vagus pulse, and the individual will probably die. This condition occurs in acute lesions, excepting brain tumor.

There are really two distinct groups of cases—one associated with an increased intracranial tension, the other associated with uremia, etc. I believe the respiratory, pulse, and ocular phenomena in uremia are due to compression from the edema, as is the choked disc of nephritis.

Society Reports.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD FEBRUARY 5, 1906.—(*Continued.*)

Some Experiences With Blood Cultures in the Study of Infections—Dr. E. Libman, New York. In choosing this subject its following advantages were borne in mind: First, it could be combined with a demonstration; second, it is valuable to speak of blood cultures here where you are engaged in the same work; third, the subject is one of great interest to medical men. The work contained in this paper deals especially with general infections with the pyogenic cocci.

Cultures have been made in from 650 to 700 cases, not all successful. Certain points only will be taken up and the literature omitted.

Terminology.—When bacteria attack any part of the body there results infection if not diagnosed—a cryptic infection. Bacteria in the blood constitutes a bacteriemia—a cryptogenetic bacteriemia when the point of infection has not been found. A secondary infection is one following the first infection; a mixed where both occur in the blood. Terminal and agonal infections differ. The terminal is the invasion by bacteria when the patient is about to die of another disease, an agonal infection having no *rôle* in the patient's condition, coming too late.

Technical Considerations.—The amount of blood used is 25 c. c., and we never rely on the microscopic examination. A variety of media is desirable. As a routine we use agar, serum agar, serum glucose agar, and glucose agar. It is not simple to state briefly the relative values of these media. At times a fluid is better than a solid media, and serum often better than a glucose agar. Streptococci, for example, with concentration of the blood, will at times grow more favorably on glucose agar. Media in tubes has been used very little for the past six years, and glycerine agar has been found of little use. Anerobic work has been done in cases of abdominal disease, mastoid disease, and in foci of the lungs. Contaminations were frequent at first, but were avoided with increased experience.

The organisms most frequently found were the staphylococcus pyogenes albus, the pseudodiphtheria group, and micrococcus tetragenus. In this paper I wish to mention especially the pneumococcus, streptococci, staphylococci, the gonococcus, the meningococcus, and their identification. For the routine differentiation of some of the above the following points are of value: It has been found the capsule of the pneumococcus is so typical that when Gram positive it can be recognized by its capsule alone. This capsule is situated far from the body, with a clear space between them. On media after a time they lose their typical capsules and attain a streptococcus-like capsule, while streptococcus mucosus capsulatus possesses a different type of capsule that takes some stain. If the capsules are not perfectly definite and typical, then Dr. Hiss' method of fermentation is used to identify the pneumococcus. The streptococcus always throws down a precipitate in the agar, glocose, and serum medium, while the pneumococcus rarely, if ever, does. In the above-mentioned Hiss inulin medium the streptococcus does not and the pneumococcus does ferment. These tests will allow one to

make up his mind pretty definitely as to whether he is dealing with a streptococcus or a pneumococcus.

The pneumococcus is supposed to perform no hemolysis on plates, but this specimen which I show did produce very marked hemolysis not only about the colonies, but also at a distance from them.

In regard to the staphylococcus aureus too careless means are generally taken for its identification. As Welch has shown, it may only produce its gold color after a few days' growth, best upon potatoes. Likewise Gram negative cocci in the future must be more closely studied, as the gonococcus and the meningococcus are not the only ones known. We have found one in a case of otitis media, an organism that produced a definite odor, and Boggs mentions one from a case of bronchiectasis here.

If the blood culture is positive, we always endeavor to confirm by a culture from the primary focus, and if the patient die, from post-mortem cultures as well. Post-mortem cultures we believe to be of no use except as confirmatory evidence. In this connection it is stated the blood from the arm-vein post-mortem is considered superior to that from the heart.

Organisms Found.—Streptococci were found 58 times in the blood; the pneumococcus four times, apart from pneumonia cases; staphylococcus albus was found only shortly before death, and called an agonal invasion; staphylococcus aureus was found 28 times; citreus was found once in a case of osteomyelitis; the colon bacillus was found in one case of perineal urethrotomy; paracolon was found in one case of colitis. In a case of uremia B. proteus vulgaris was found, and B. pyocyaneus in one fatal case of toxic febrile icterus. In a case of a premature jaundiced baby an albus was obtained from the blood during life. This organism remained white, while cultures from the heart blood of the same case four hours post-mortem showed pure aureus. It was thought that the bile might have caused an inhibition of the pigment formation of the aureus, though no such results were obtained in experiment, though bile may have a different action than icteric serum.

Mixed and secondary infections we have found to be uncommon. We have noted streptococcus and gonococcus, streptococcus and proteus, paracolon and staphylococcus albus and streptococcus, and streptococcus and staphylococcus.

Points of Interest Concerning Certain Diseases Studied.—1. *Osteomyelitis.*—The cases generally showed bacteria in the blood. In the staphylococcus cases we were apt to consider the bone lesion the primary thing. In the streptococcus cases the symptoms were less fulminant. Staphylococcus aureus was found in certain cases of this disease in which there were skin lesions, from which the organisms were also obtained. These were all fatal cases.

2. *Pareitis.*—The blood cultures from these cases were generally negative, and they were probably mouth infections. In the following no shortly-ante-mortem examinations were considered:

3. *Cholecyctitis.*—The blood examinations were negative even at the height of the disease.

4. *Appendicitis.*—Twenty-five cases were negative even for anerobic organisms.

5. One case of chronic endocarditis and erythema nodosum was negative.

6. *Peritonitis.* — Twenty cases were negative even associated with a chronic nephritis.

7. *Thrombosis of the Portal Vein.*—These were all negative.

8. *Inflammation of Female Pelvic Organs.*—In two cases S. aureus and streptococci were found.

9. In a case of abscess of the clitoris extending to and involving the broad ligaments the blood was negative, as it was in a case of pulmonary abscess.

10. Cases of ear infection were negative even though very severe.

11. In bladder and kidney infections there were found very few blood invasions.

12. Some diseases in which there is no proof of bacteria:

a. Acute ascending paralysis, one negative case.

b. One negative case clinically typhoid, but in which there had never been a Widal reaction and paratyphoid had not been isolated. We must group these cases together and study further.

c. Some cases with the pupils, rash, and cerebral symptoms of typhus which were negative as regards blood cultures.

d. Cases with visceral lesions of erythema and purpura were negative.

e. A series of cases of fever with erythema were negative except one case of erythema nodosum with joint symptoms.

f. Five cases of acute yellow atrophy were negative.

g. Cases of rheumatism, arthritis deformans, and gonorrheal rheumatism were negative.

13. Endocarditis is very definitely a metastatic focus, due to a bacteriemia, the organisms attacking a normal or a diseased valve. The number of bacteria in the blood and the size of the resulting lesion bear no relation. One case exhibited shows the fallacy of a healed case of ulcerative endocarditis. The patient had an old mitral lesion and a bacteriemia of large size. It was thought the condition was an acute one, but post-mortem no recent lesion was found.

Of gonorrheal endocarditis the organisms were found in the blood in one case, and staphylococci were found in a case diagnosed gonorrheal.

There are two main types of this condition—first, the bacteriemia sets up an acute endocarditis, which condition plays the main part in the disease, and second, the bacteriemia, after setting up the acute endocarditis, plays the main part itself.

With a bacteriemia the lymph nodes all over the body are found enlarged and a pink-red color.

In certain cases we must consider the old theory that a sterile embolus may cause fever, as blood cultures tend to show this in cases of endocarditis with fever and negative blood findings.

As a result of much work in our laboratory we have come to the conclusion it is futile to attempt to classify the streptococci, at least for the present. Some cases walk about the ward with bacteria in their blood, the organisms being very attenuated. It is best to classify these cases together, and the portal of entry is probably the tonsils.

In the diagnosis of chronic endocarditic disease we have found the pres-

ence of petechiae of great importance. Especially important are these if they appear on the conjunctiva or on the palms of the hands or soles of the feet, though it must be borne in mind that with a great many bacteria in the blood and no endocarditis these petechiae may appear. In many cases the finding of petechiae has led to the diagnosis of endocarditis.

Urinary Findings.—Bacteria were generally found in the urine if they were present in the blood in large numbers. They generally disappear from the urine first, though in a few cases the bacteria persist after the blood is negative. In these cases there will generally be found abscess of the kidney.

Questions of Importance.—Do bacteria enter the blood in every case of local infection? Even minute lesions may cause a bacteriemia.

From all the cases studied we have arrived at the following conclusions: First, negative findings may be due to the fact that the condition is non-bacterial or due to tuberculosis; second, it may be due to the ordinary organisms, but none may be present in the blood or only in a portion of the circulatory system—a partial bacteriemia such as in the portal system; third, there is a group of cases in which the bacteria may have been present and have disappeared; fourth, cases in which we may take for granted the secondary focus resulted from a primary by blood transmission, though the bacteria may have been present only for a short time in the blood.

Cases of positive findings we have grouped as follows: First, primary focus found and was definite; second, primary focus not found and indefinite.

If bacteria are found in the blood, and the primary lesion is treated and gets well, the bacteria may disappear and the patient recover. On the other hand, the bacteria will also disappear from the blood in some cases where the primary lesion is unsuccessfully treated. If the primary lesion be healed and no metastatic focus be found, and no endocarditis is present, the finding of bacteria in the blood points to the fact they may develop somewhere in the blood-stream. Bacteria may also be introduced into the blood during a surgical operation.

In general it may be said a bacteriemia of large size is due to a discharge from a point of infection, and the multiplication of bacteria in the blood-stream is not as common as it is thought to be.

Diagnostic Use of Blood Cultures.—1. In some cases this is the only means of recognizing the bacterial origin of the disease.

2. The blood culture may show the trouble to be a secondary bacteriemia from some intercurrent condition.

3. It may be shown the trouble is an intercurrent or a terminal condition, and the disease itself is not necessarily bacterial.

It is of importance in diagnosis to distinguish between endocarditis and thrombosis of the vena cava with no swelling of the legs. The thrombosis may act as a point of cryptic origin for a bacteriemia.

In cases of persistent bacteriemia the primary focus should be carefully examined, as the condition may be one of metastatic foci if the primary focus does not warrant the condition of the blood. If the primary focus is healed and blood cultures are negative, and the symptoms persist, the case is probably one of metastatic foci, though, of course, the possibility of some non-bacterial disease must be considered. Multiple abscesses of the kidney will often account for the persistence of the symptoms after the disappearance of the bacteriemia.

Prognosis in Cases With Bacteriemia.—A moderate number of bacteria in the blood may do harm, and the character of the primary focus plays a *rôle* as does resulting secondary infection. We have had six recoveries in 58 cases of streptococcus septicemia, these being much more serious than the staphylococemia. The number of cases reported as recovered depends on the type of cases studied.

Dr. Welch: There is an immense amount of good work contained in the communication, and it is a great credit to him, to the young men associated with him, and to the hospital. I urge our students to take advantage of this opportunity to study these specimens, especially the cases of embolic aneurism, as you will not find anywhere such a collection.

The suggestions of nomenclature are of great importance, as terms are too losely used nowadays. The terms suggested by Dr. Libman are excellent, though it is a difficult matter to alter the ordinary nomenclature.

The point made as to guarding against accidental contamination in blood cultures is an excellent one, as nearly all the early work done along these lines is vitiated by such errors.

The presence of bacteria in the blood is often of no significance, as they are washed there, as Dr. Libman has pointed out, and this fact shows why cultures made shortly before death are more often positive than those made earlier. It is also to be noted there may be a great variation and irregularity in the distribution of bacteria in the blood, and they may stay for a long time in the capillaries, as only in the large vessels does a bacteriolytic action occur, while the cells of the capillaries inhibit this action.

Dr. Cole: The technique of blood cultures is not yet perfected, as so many things have to be considered—for example, the influence of the leucocytes in the culture.

Book Reviews.

Manual of Psychiatry. By J. Roques de Fursacs, M.D., formerly Chief of Clinic at the Medical Faculty, Paris. Translated by A. J. Rosanoff, M.D., Junior Assistant Physician, L. I. State Hospital, King's Park, New York. Edited by Joseph Collins, M.D., Professor of Diseases of the Mind and Nervous System in the New York Post-Graduate Medical School. New York: John Wiley & Sons; London: Chapman & Hall, Ltd. 1905.

The title of Dr. de Fursacs' book at once suggests to the alienist the difficulty of the task which the author has undertaken. To draw clearly the tenuous and often indefinite line separating the various mental maladies and to lay on the delicate variations of light and shade which distinguish them within the compass (necessarily limited) of a manual is a task sufficiently arduous.

Dr. de Fursacs has given vivid distinct pictures without embarrassing and confusing detail. The translator work fortunately accords with the high accord set by the author.

Much care and attention has been expended upon etiology, symptomatology, and the practice of psychiatry, a clear conception of which is indispensable to the understanding of the individual mental diseases. The book considers, in addition to the pure psychoses, idiocy, dementia, epilepsy, and the narcomanias. Alcoholic insanities, both acute and chronic, are given a prominence justified by their growing importance.

A definite or presumptive cause is shown whenever possible for the development of the several diseases, and the purely artificial distinction between the so-called idiopathic and the symptomatic or secondary mental diseases is well shown.

In connection with etiology the special difficulty of definite conclusions in the case of the psychoses is plainly shown, and the author lays stress on the fact that the elements causing insanity are usually complex, rarely simple. The author illustrates this succinctly in the following citation: "An individual of neuropathic ancestry, and himself tuberculous, alcoholic, and exhausted, has an attack of melancholia. Shall we attribute the attack to the exhaustion, alcoholism, tuberculosis, or heredity?"

The question of heredity is considered by the author with admirable temperance and lack of bias. Alcoholism is given perhaps an undue importance, though ranking far below "autointoxication."

De Fursacs' book on the whole gives a clear and fairly definite picture of mental disease, more so, doubtless, than many more extensive works.

International Clinics. A quarterly of illustrated clinical lectures and especially-prepared articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and other topics of interest to students and practitioners, by leading members of the medical profession throughout the world. Edited by A. O. J. Kelly, A.M., M.D., with the collaboration of Wm. Osler, Baltimore; John H. Musser, Philadelphia; James Stewart, Montreal; John M. Murphy, Chicago; A. McPhedran, Toronto; Thomas M. Rotch, Boston; John G. Clark, Philadelphia; James J. Walsh, New York; J. W. Ballantyne, Edinburgh; John Harold, London; Edmund Landett, Paris; Richard Kretz, Vienna. Volume IV. Fourteenth Series, 1905. Philadelphia and London: J. B. Lippincott Company.

In the publisher's judgment this volume is the best ever issued under the title International Clinics. The present reviewer would have given that distinction to the second volume of this, the fourteenth series, confessing, however, that his own somewhat narrow interest was particularly served by that volume. The present volume, the fourth of the series, undoubtedly maintains the excellent reputation of this valuable quarterly. Among the 21 articles grouped under six different heads one could not select with fairness a few as showing special merit. There are three articles on various forms of arthritis—one by S. Solis Cohen, another by Sir Dyce Duckworth, and a third by a distinguished surgeon, W. R. Townsend. There are four articles under the general heading of Treatment—one about medicinal intoxications in chronic diseases, by George Hayem; one on the dechloridation treatment, by Adolphe Javal; one by Myron Metzenbaum, on the therapeutic use of radium, and one by F. Lejars, on the treatment of patients desperately ill in consequence of accidents, hemorrhage, or infection. The monograph offered in accordance with the recent practice of the publishers is this time by Charles F. Craig, and is entitled "The Etiology and Pathology of Amebic Infection of the Intestines and Liver." One article is richly illustrated, that by E. H. Bradford, on "Lateral Curvature of the Spine."

MARYLAND MEDICAL JOURNAL.

JOHN S. FULTON, M.D., *Editor.*

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BALTIMORE, MAY, 1906

THE PRESIDENT'S MESSAGE.

THE retiring president, Dr. Samuel T. Earle, has made a justifiable breach in the customs of the Medical and Chirurgical Faculty. This breach consists partly in the substitution of an executive message for the traditional presidential address. Possibly others may mistake this, as Dr. Earle evidently does, for the essence of his departure from established usage. Other presidents, in their official addresses, have given special consideration to the practical needs of the Faculty, but none have felt themselves confined exclusively to such matters. The circumstances which have obliged Dr. Earle to so circumscribe his speech show in what important respects he is an innovator. During his year of office he has visited 15 of the 24 constituent societies, and everyone who knows about the actual management of the Faculty's affairs knows that he has done a much larger amount of work which is not recorded. The office of president seemed to him to call for ceaseless work, and this virtue has characterized his administration. It is in the conception of constant service rather than in an intensely practical executive message that Dr. Earle is an innovator. Those who have observed his long activity in the affairs of the Faculty will appreciate and admire the consistency of his presidential administration.

The progress of medical organization, which he chooses as the paramount topic in his message, had acquired a strong impetus before his term began, and had derived much of its power from his unremitting work in previous years. So much has been said in and by the MARYLAND MEDICAL JOURNAL on this subject that hardly anything new can be said. The success already attained suggested to Dr. Earle the one word needful. The movement has gained such headway that its advance is no longer laborious, and just here arises the danger that easy progress may deceive some of us into thinking that the Faculty may now be carried along by its own momentum.

THE NEED OF A NEW BUILDING.

THE need of a large modern fireproof building seems to Dr. Earle an urgent problem. All of us recall the stirring words of Dr. Brush on this subject a year ago, and for five or six years past this need of the Faculty

has been almost constantly in mind. The progress of a decade is very strikingly illustrated in the history of our present home. But little more than 10 years ago, when we moved our precious belongings into the house on Hamilton Terrace, we seemed at the beginning of an era of contentment. Our little auditorium sufficed for our own needs, and we were able to offer accommodations to those members of the Faculty who were organizing or promoting public movements. A few instances, recalled by the writer at this moment, will illustrate a small part of what has been originated in our house. In 1898 a conference of local health officers was held in the Faculty rooms. There were at that time but 15 such officers in Maryland outside of Baltimore. The few who assembled stirred up public interest, however, especially among school teachers, and in the following year the attendance overflowed the building. The Baltimore Medical College and the Western Female High School offered ampler accommodations. In 1899 the Maryland Public Health Association, under the leadership of members of the Faculty, determined to hold a public meeting on the local question of sewerage. The meeting was held in Levering Hall. Col. George Waring, Dr. W. H. Welch, Mr. Mendes Cohen, and Prof. W. K. Brooks were the principal speakers. Methods of disposal were discussed and the relations of the Baltimore sewerage system to the oyster problem were considered. No other public meeting was ever held to discuss the city sewerage until after the legislature had passed an enabling act, and its ratification became an issue in local politics. In 1900 the first meeting on public baths was held by the Maryland Public Health Association in the Faculty rooms. About 30 persons were present, a majority of them members of the Faculty. It was determined to hold a larger public meeting, which occurred in McCoy Hall six months later, and brought to the city the splendid benefactions of Mr. Henry Walters, which put Baltimore into leadership in this particular sort of public service.

The problem of tuberculosis was discussed in the Faculty rooms in 1900 and 1901, and in 1902 made its formal entry into the field of politics when the Tuberculosis Commission was appointed. Three of its five members, all of its medical members, were members of the Faculty, as was also its executive officer. When this commission made its appeal for a public hearing the Faculty rooms were far too small for the purpose, and the hospitality of Johns Hopkins University was accepted. Four remarkable achievements must be ascribed wholly, or almost wholly, to this commission. By means of the Tuberculosis Exhibition it generated a most enlightened public sentiment in Maryland, and gave to public medicine a new instrument of education; by means of wise laws it made Maryland a leading exemplar of the administrative control of tuberculosis; by drawing from other parts of the country all the leaders together in Baltimore it brought to birth the most significant public movement ever organized by the medical men of America, the National Association for the Study and Prevention of Tuberculosis; it so opened the hearts and minds of the people of Maryland that the recent legislature appropriated $165,000 for tuberculosis sanatoria, and the people support by private subscription a Maryland Association for the Prevention and Relief of Tuberculosis, employing a paid executive, who gives undivided

attention to this special work, and expends annually a sum greater than the revenues of the Faculty.

Another strong movement directed by members of the Faculty now turns to the generous university for accommodations. A course of 10 lectures on milk, just completed, and a milk exhibition, intended to benefit the whole people of Maryland, will concentrate the attention of another set of special students, most of them medical men, on a great hygienic undertaking by the profession of Maryland, and we shall have again to entertain them in the house of a friend.

Not only is our own home too small for the gatherings whose purpose is to influence public opinion; it is too small for our own purposes. Johns Hopkins University gave us McCoy Hall for our centennial. We went there to hear Dr. Brush's presidential address, to take leave of Dr. Osler, to welcome Dr. Osler back, to hear Dr. Earle's message, to listen to Dr. Jacobi. These are but the few illustrations which occur to the writer at one sitting. There are many others.

The medical profession is influential in this State. It has generated and fostered many movements of incalculable benefit to the general public. Leaving the private utility of its members wholly unconsidered, its public services would be but slightly distinguished if the Faculty were enabled to house appropriately 100,000 books and an audience of 1000 people.

MEDICAL COMMUNICATIONS TO THE LAY PRESS—ANOTHER GOOD INNOVATION.

After considering the question of dispensary abuse, Dr. Earle took up the question of medical communications to the lay press. One cannot recall that any former president has spoken on this subject; certainly none has considered it in so broad a spirit. The proposition that the medical profession should take up as a public duty the enlightenment of the people on medical matters through the lay press is a wholly admirable suggestion, shocking though it would have been to the medical men of an earlier generation. It must be confessed that physicians have been very reluctant to admit this plain responsibility. Many physicians are exceedingly sensitive about seeing their names in print, not because the publicity is in itself disagreeable, but because the spirit of envious criticism is yet prevalent among us. Those whose natural impulse it is to speak out on public questions hold their peace and permit even dangerous misinformation to spread rather than incur this innocuous but nasty criticism.

The mere fact that a president of the Faculty, and a president whose professional success is absolutely proof against malevolent aspersion of every sort, has said that the profession must recognize a duty to the newspaper public, ought to give needed liberty to the large group of physicians in Baltimore who are able to advise the people and should be willing to be quoted in the public press.

Medical Items.

The one hundred and eighth annual meeting of the Medical and Chirurgical Faculty of Maryland was held in Baltimore on Tuesday, Wednesday and Thursday, April 24, 25 and 26. The attendance showed a substantial increase over previous years, and illustrated the healthy condition of growth in professional organization in Maryland. The House of Delegates held its first session in the Donovan Room, McCoy Hall, Johns Hopkins University, at 2 o'clock on Tuesday afternoon, when the reports of the secretary, trustees, council, library committee, memoir committee, legislation committee, relief fund committee, and the board of medical examiners were all submitted.

The second session of the House of Delegates was held at 9 A. M. on Wednesday, when the questions of the dispensary abuse, medical education, publication of proceedings, and other miscellaneous matters were considered.

The third session of the House of Delegates was held on Thursday morning at 9 o'clock, when the report of the treasurer was submitted, nominations were made for the board of medical examiners, and officers for the ensuing year were nominated.

The first general meeting was held in McCoy Hall, Johns Hopkins University, on Tuesday evening, April 24, at 8.30. Dr. Samuel T. Earle, Jr., the president, read his presidential message. Dr. William H. Howell made a supplemental report on medical education, and Dr. Hiram Woods a supplemental statement concerning dispensary abuse. Dr. H. O. Reik was to have made a report on a new home for the faculty, but this report was omitted. Dr. Reik made a statement on the advisability of the faculty publishing its own journal.

On Wednesday, April 25, the faculty had a morning session at 10.30 in the Faculty Hall. Papers were read by Dr. Harry T. Marshall, on "Cervical Adenitis" (glandular fever); by Dr. Randolph Winslow, on "A Case of Sarcoma of the Hyoid Bone and Larynx, With Removal of the Hyoid Bone, Base of Tongue, Larynx and Part of the Pharynx, Under Local Anesthesia;" by Dr. Alexius McGlannan, on "Tumors of the Breast;" by Dr. J. A. Chatard, on "An Analytical Study of Acute Lobar Pneumonia in the Johns Hopkins Hospital, May, 1889-May, 1905;" by Dr. W. S. Gardner, on "Treatment of Prolapsed Ovaries;" by Dr. Leonard K. Hirshberg, on "A New Fever-Producing Organism."

From 12.30 to 1.45 Dr. Samuel T. Earle, Jr., the president, gave a reception to the members of the faculty.

At 2 o'clock on Wednesday afternoon the members of the faculty were taken on a trip to the quarantine station. Refreshments were served on the boat. Dr. M. J. Rosenau, director of the laboratory of hygiene of the United States Public Health and Marine Hospital Service, made an address on "Some of the Recent Aspects of Quarantine and Its Relation to Public Health." Mayor Timanus accompanied the party to quarantine and made a short address. Another address on quarantine was made by Dr. Sydney O. Heiskell.

Wednesday evening the session was held at McCoy Hall at 8.30, when Dr. Abraham Jacobi of New York delivered the annual oration on "The Role of Pure Cow's Milk in the Feeding of Infants." At the conclusion of Dr. Jacobi's address Dr. Samuel K. Merrick presented to the faculty a portrait of Dr. Richard McSherry, formerly professor of medicine in the University of Maryland. This portrait, the gift of Dr. McSherry's sons, and painted by Hallwig, was accepted by the president, Dr. Samuel T. Earle, Jr., who made a brief address.

On Thursday, April 26, the morning session was held at the Faculty Hall at 11 o'clock. The first business was the election of medical examiners. Dr. J. McPherson Scott of Hagerstown and Dr. E. J. Dirickson of Berlin were re-elected. Papers were read by Dr. R. I. Cole, on "General and Metastatic Gonococcus Infections;" by Dr. J. E. Gichner, on "Hydrotherapy in Private Practice;" by Dr. J. Buck, on "A Case of Congenital Transposition of the Viscera, With Exhibition of Patient;" by Dr. J. C. Bloodgood, on "The Importance of the Early Recognition and the Operative Treatment of Malignant Tumors;" by Dr. B. W. Goldsborough, on "The Removal of an Unusually Large Stone by Suprapubic Cystotomy;" by Dr. J. J. Carroll, on "Thrombosis of the Bulb of the Internal Jugular Vein of Otitic Origin;" by Dr. C. O'Donovan, on "Lessons Learned From Experience in Treating Pneumonia;" by Dr. Gordon Wilson, "A Case of Anterior Mediastinal New Growth With a New Physical Sign of Aneurism of Aortic Arch" (exhibition of cases); by Drs. J. Friedenwald and L. J. Rosenthal, on "Some Observations on the Value of

Occult Hemorrhage in the Diagnosis of Ulcer and Carcinoma of the Stomach."

The afternoon session was held at McCoy Hall at 4.30 o'clock, when three special addresses were given. The first was by Dr. Llewellys F. Barker, on "Some Recent Advances in the Study of Tropical Diseases." Dr. W. T. Watson gave a lantern demonstration on "The Part Played by Insects in the Transmission of Disease." Dr. John S. Fulton gave a lantern demonstration on "The Dairy Customs of Foreign Countries."

The following officers were elected for the coming year: President, Hiram Woods; vice-presidents, William T. Watson, Philip Briscoe of Port Deposit, and Frank Hines of Chestertown; secretary, John Ruhrah, re-elected; treasurer, William S. Gardner; councilors—Clotworthy Birnie, Robert W. Johnson, Samuel T. Earle, Paul Jones, and Guy Steele.

The following committees were appointed: Committee on scientific work and arrangements—Arthur P. Herring and G. Milton Linthicum; legislative committee—Wm. H. Welch, John D. Blake, and John W. Chambers; library committee—Harvey W. Cushing, J. Whitridge Williams, W. S. Duncan of Towson, Henry Barton Jacobs, and J. Frank Crouch.

Dr. G. Lane Taneyhill was elected delegate to the American Medical Convention, which convenes shortly in Boston. As delegate-alternate Dr. Brice Goldsborough was chosen.

The annual banquet of the faculty was held at the Faculty Hall, 847 North Eutaw street, at 8 o'clock on Thursday evening. His Honor Mayor Timanus was present at the banquet and made a brief address in response to the toast, "The City of Baltimore." Dr. Hiram Woods, the newly-elected president, responded to the toast, "The Incoming President." Dr. Snively of Waynesboro, Pa., responded to the toast, "Sister Medical Societies." Dr. Wm. H. Welch spoke for the board of trustees of the American Medical Association, Dr. Brush on "Our Relation to Our National Society," Dr. Wm. S. Thayer on "The Fight Against Patent Medicines," and Dr. James Bosley on "The Health Department."

The reception committee included Dr. A. C. Harrison, Dr. H. W. Kennard, Dr. J. A. Chatard, Dr. G. L. Taneyhill, Jr., Dr. Wm. Caspari, Dr. J. I. Spear, Dr. H. G. Beck, Dr. G. M. Linthicum, Dr. Guy Steele, Dr. L. M. Allen.

On May 7 the Maryland Milk Exhibition will open in McCoy Hall, Johns Hopkins University. This, like the Tuberculosis Exposition of 1904, is intended to instruct the people of Maryland concerning the hygienic, dietetic, economic, and technical relations of milk. The State Board of Health, Sanitary Live-Stock Board, Agricultural Experiment Station, Department of Farmers' Institutes, Medical and Chirurgical Faculty, Maryland Association for the Prevention and Relief of Tuberculosis, Federation of Women's Clubs, and Household Economic Association are joint sponsors for the undertaking. The directors of the exhibition are Dr. Wm. H. Welch, Dr. Charles W. Mitchell, Dr. W. S. Thayer, Prof. H. J. Patterson, Mr. W. L. Amoss, Dr. Llewellys F. Barker, Dr. John C. Hemmeter, Dr. James Bosley, Mr. Samuel Shoemaker, Mrs. J. J. Abel, Mr. E. Gittings Merryman, Mrs. A. J. Sioussat, Dr. Samuel T. Earle, Jr., and Dr. Henry Barton Jacobs. The various departments of the exhibition will be under the charge of subcommittees. These departments will be as follows: Chemistry, pathology and bacteriology, statistics, medical milk commissions, milk dispensaries, model dairies, dairy schools, commercial milk and milk products, infant feeding, technical uses of milk, municipal control of milk supply, dairy utensils and apparatus, the dairy customs of foreign countries, culinary uses of milk, milk-borne diseases, literature of milk. The interest in this undertaking has grown to surprising proportions. One small exhibit comes from Moscow, one from Copenhagen, another from Berlin, another from Palermo, Sicily; one from Panama, and one from Havana. Three exhibits were expected from California. Part of the exhibit was shipped from Oakland on the day after the earthquake. Part of the same exhibit was in a wrecked building, and will not arrive. The largest exhibits will come from Eastern cities. The opening address will be delivered by Dr. Harrington, secretary of the State Board of Health of Massachusetts. The exhibition will be open from 10 A. M. to 10 P. M., and demonstrators will be on duty during those hours. A major part of the expense will be met by private subscription. The committee on ways and means includes Mrs. J. J. Abel, Dr. Joseph S. Ames, Mr. W. A. Eisenbrandt, Mr. John Glenn, Dr. J. H. Mason Knox, Dr. Howard A. Kelly, Dr. George C. Wegefarth, Dr. Wm. H. Welch, Dr. Hugh Young. The secretary of this committee is Mr. H. Wirt Steele, and the treasurer is Mr. Elisha H. Perkins.

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THE ORIGIN, DEVELOPMENT AND RESULTS OF MUNICIPAL MILK WORK IN ROCHESTER, N. Y.

By George W. Goler, M.D.,

Health Officer of Rochester.

DELIVERED IN M'COY HALL, JOHNS HOPKINS UNIVERSITY, ON FEBRUARY 27, 1906, BEING THE SECOND IN A SERIES OF TEN LECTURES ON MILK, GIVEN UNDER THE AUSPICES OF THE MARYLAND STATE BOARD OF HEALTH.

In the discussion relating to pure foods and food adulterations little or nothing is heard of milk and its dangers. Every baby must have milk, that opaque, whitish, more or less creamy fluid, with an odor frequently suggestive of the barnyard, and often more valuable as a food for calves or pigs or for fertilizing material than as a ration for babies.

This great food supply comes to all the cities and towns and hamlets of our great country from thousands and thousands of farms, and to the average householder has the following recommendations: It is to be found in most places in large quantities; it is cheap, sold at a price that has become fixed; it is white, or nearly so, and it has a reputation for its nourishing qualities. It is usually sold by a man whose every movement exhales an odor of cow stables, whose utensils would for cleanliness hardly find a place in a fairly well-ordered kitchen; yet this man brings in his wagon and in his utensils the food we give to our babies, to our sick, and of which we ourselves, to some extent, partake. Were the milkman who serves milk to you clean, were his utensils clean, and he should dare to charge even as much as one additional cent per quart for his product, the housekeeper would get another milkman. So he remains dirty because he cannot afford to be clean. It costs money to adopt cleanly methods. This man may have cleanly instincts, but his customers compel him to remain dirty. Have you ever observed the milkman, your milkman, at work, seen him wash his cans, measures, bottles, etc.? The average man does it about in this way. He gets a washtub of water. It cannot be very hot, because hot water would coagulate the old milk caked on the can or bottle. In this water he swirls the bottles, cans and

things around, rinses them in another tub of more or less hot water, and then stands them up to drain in the dairy-house. Frequently this dairy-house is near the barn, and there the things stand until they are filled with milk, when they are more or less tighly closed and more or less perfectly cooled. Where does the man get the milk he puts into his cans or bottles? Do *you* know? Does *he* know? In a great many instances, while the milkman knows the place from which his milk came, he has never seen the barns or stables, knows nothing of their cleanliness or, save in a business way, the man from whom he purchases his milk. Frequently the man buys milk from a farmer whose premises he has never seen. Occasionally it comes from his own little place in the suburbs. In either case the milk most frequently comes from a close, cobwebby, dusty, undrained barn, containing fly-tormented cows in summer or darkly-housed, filthy cows in winter.

Your milkman uses a strainer. Why? He uses a strainer to strain out the large particles of filth. The smaller particles and the soluble filth, of course, find their way through the strainer into the milk that we feed children. Where does the man store his milk between the time the cows are milked and the product is delivered to his customers? Does he keep it in the barn behind the cows? In winter he frequently keeps his product in the pantry off the kitchen. Should he have diphtheria or scarlet fever in his family, what is to prevent these diseases being carried to the babies in the city, not to mention the intestinal diseases that may be caused by the filth and bacteria usually contained in the milk? In summer he may keep the milk in the springhouse, and if typhoid excrement obtains access the city customers not infrequently suffer.

All this, and more, occurs day after day and year after year in thousands upon thousands of instances, for you compel milkmen to be dirty, because you are not willing to pay a living price for milk. You are willing to jeopardize the baby's health rather than pay a living price for milk, and thus enable the milkman to be clean. Until the people are willing to pay a better price for milk they cannot expect to obtain milk fit to feed little children. According to the statistics of men in the agricultural experiment stations, many farmers are keeping milch cows at a loss. Until you are willing to pay for clean milk, until you are willing to pay for having milk inspected as it should be inspected, you will get a product having a high fertilizer and a low hygienic value, and you and your children will suffer disease and death as a consequence.

In Rochester, N. Y., we have tried to insure that all our citizens shall have an approximately clean milk supply. It is my purpose to tell you why and how we have accomplished this work. We have a population of 185,000 people. We receive 75,000 quarts of milk daily from 700 farms lying within a radius of 60 miles in three directions. This milk is distributed by 225 retail dealers licensed at $2 each. In our city there are approximately 5000 births per annum, not all of which are reported. If 4000 of these babies live, we then have at all times between 15,000 and 20,000

babies under five years of age dependent for the most part upon milk as food. Take these figures as a basis for your city. Think upon the thousands upon thousands of lives dependent upon milk as food. How much are you willing to pay for this food? How much does your city pay for milk inspection? Are you willing to find out what your city pays, what your State pays, for inspecting milk, and if you find they do not pay enough, are you willing to do your duty as citizens by insisting that sufficient money be set aside for the inspection of farms and dairies from which this food supply comes and for the maintenance of a sufficient chemical and biological staff to examine this food supply? Will you insist upon the work being well done? After an examination of municipal milk work similar to that conducted by us during the summer months I think you ought to be willing to establish milk stations at least during the summer either at the cost of private philanthropy or at the expense of the municipality. Our municipal milk stations, four in number, with a portable laboratory on a farm, are established for two months each year in order that we may safeguard the lives of more than 15,000 children under five years of age. We began our work in a rough way nearly 10 years ago. What we have been able to accomplish we can only show by the figures demonstrating the great decrease in the number of deaths from all causes, both during the summer months and for the whole period. We cannot, of course, show the effect on the health of the children whose lives have been saved through this work. In attempting to show what we have done we do not deal with estimated populations, percentages of population, or causes of death from intestinal diseases alone. We take all of the deaths from all causes that occur under five years of age, for we assume that every death in a child under five years of age was, in part at least, due to the dirty character of its food.

The Rochester milk work had its beginning in the summer of 1897, when, during July and August, we began to establish summer-milk stations, where milk put up in nursing bottles could be bought at a nominal price. Prior to that time for a series of years the deaths in children under one year of age and the deaths in children under five years of age were as shown in the appended table. For the whole period of years from 1888 to 1896 there were 6629 deaths in children under five years of age. For a similar nine-year period, from 1897 to 1905, there were 4403 deaths in children under five years of age, a diminution of over 30 per cent. These deaths represent all of the deaths from all causes, and not merely those from intestinal diseases alone. During the first period of years the milk inspection carried on by the city was both insufficient and inefficient. There were one or two milk inspectors who occasionally indulged in too much alcohol, who borrowed money from milkmen and protected them because of the sums borrowed. We thus had for the period named an enormous number of unnecessary deaths in children and an inefficient milk inspection.

For the whole nine-year period from 1897 to 1905 the deaths in

children under five years of age were about one-third less than those in the nine-year period from 1888 to 1896, and this decrease in the number of deaths has taken place, notwithstanding the fact that the city has increased in population from 20,000 to 40,000 in the last nine years. In the last nine years there has been more efficient milk inspection without bribery or rascality.

In the first period the sickness and deaths among infants demanded changes in the methods of work, and slowly, very slowly, the changes were wrought. The changes sought were mainly in two general directions—first, the establishment of summer-milk stations as demonstration plants, under the supervision of trained nurses, and second, the improvement and development of municipal milk inspection.

The beginnings of the milk stations in 1897 were on a very primitive scale. Only $300 were required to begin this work the first season. The services of two nurses were donated by two of the hospitals—one nurse for two months and one nurse for one month. A store was rented in the most populous part of the city, fitted with the necessary running water, gas stoves, counters and shelving. To this store milk was brought, pasteurized by the nurse, cooled and sold at cost, and little pamphlets entitled "How to Take Care of Babies," and printed in four languages, were given to mothers who came to the stations for milk. The results obtained in this first summer's work were due to the interest of the public press and to the fact that the papers published many articles dealing with the work of the milk stations. Elsewhere I have dealt with this work in detail, and it hardly seems necessary to repeat here what is already in print.

The result of this first season's work, so far as it pertains to mortality, and the expenditure of $300 are shown in the table. These results are not only represented by the diminution in deaths during July and August, but in the diminution in deaths for the whole year.

In the second and third summers four stations were established, and during these seasons, as in the first instance, we made the grave mistake of pasteurizing the milk. We had not yet arrived at the stage of evolution in our work that permitted us to understand that it was better to feed clean milk than to feed cooked milk and cooked dirt together.

In 1900, when we paid particular attention to the cows and sterilized all of the utensils, we ceased pasteurizing, established a clean-milk plant upon a farm, extended our inspection work so that a large number of samples were collected to determine their nutritive value, began the systematic collection of samples to determine the bacterial content in milk, began the agitation for the establishment of a count not greater than 100,000 bacteria per cubic centimeter as a standard for city milk, and with the aid of the Rochester Academy of Medicine established a milk commission for certified milk.

The value of the bacterial count is used by us as an aid in deter-

mining from a distance the general cleanliness of the dairies and cow stables. In addition to this work, we continued, as we had done for five or six years prior to that time, the systematic registration of those families with infectious diseases to whom milkmen supplied milk.

Our general milk work may then be divided into (a) obtaining and examining 4000 to 5000 samples per annum for nutritive value; (b) in 1905 obtaining and counting approximately 1000 samples of milk for bacterial content; (c) inspection of dairies and stables for cleanliness; (d) registering against the name of each milkman the number of families with infectious diseases to whom he supplied milk, so that the danger of the milkman's carrying scarlet fever, diphtheria, or typhoid fever to his customers may be minimized, through ordinance and license endeavoring to educate the milkman, and, when this fails, compelling the better conduct of milk production and distribution, and by organizing a milk commission for certifying milk.

In the beginning of this general milk work there were found very many dirty cows and many dirty stables both in the city and in the country. To the average milkman straining the larger particles of dirt out of the milk, whirling it out by a centrifugal machine and then pasteurizing it, soluble dirt, micro-organisms and all, appears necessary. These things, while they make the milk keep longer, of course make it more difficult for babies to digest, but nevertheless a silver-plated centrifugal machine and a pasteurizing or steriling apparatus with bright metal attachments appeals more strongly to the milkman as a way to escape having sour milk than more simple and more cleanly methods in dealing with his barn, his cows, and his utensils.

The ordinary milkmen do not realize that pasteurized milk, while having a low bacterial count, generally owes its low bacterial count to the deaths of countless millions of the more harmless micro-organisms, while leaving more dangerous organisms to multiply. The matter of cleanliness such as is used in vaccine stations, the use of aseptic methods such as protect in vaccine laboratories, and the immediate cooling of his product to below 50° F. appeal to him less strongly than copper and nickel apparatus and the exhibition of a ball of dung and hair from the milk as an argument in favor of the use of the centrifugal machine through which dirty milk passes to be sterilized.

These notions on the part of the milkmen are difficult to combat, but we have sought, first, long and patiently to teach, and, failing in this, to compel, through arrests, fines, and the revocation of licenses, more cleanly conduct of the establishments supplying our city with milk.

Our milk work is carried on during July and August in a portable laboratory, set up each year on a farm selected for the purpose. We contract with the farmer for milk at four and one-half to five cents per quart. The plant consists of a portable house, from which a long platform extends. The house is used as a pre-

paring and bottling room. Outside the house, under a tent fly, a sink and running water are supplied. Here the bottles are washed. Next, beyond the bottle-washing plant, is a sterilizing tent. Here sterilizers are mounted upon oil stoves, each sterilizer holding two gross of nursing bottles. Beyond the sterilizing-room is the tent where the nurse sleeps. The nurse boards with the farmer, or may, if she wishes, provide her own board.

Milk is received at the portable laboratory each morning, diluted in four dilutions, bottled, iced, and shipped to the four stations, where the milk is sold as has been described.

The results of this work may be seen in the charts, in the deaths for 20 years for yearly periods, the deaths under five years for two nine-year periods, in the deaths in relation to the births, and in the deaths for two five-year periods before and after the establishment of this work.

Rather startling is the chart showing the relation of the number of bacteria in the milk and the deaths under five years of age. This combined work for inspection, for bacterial content, and for the establishment of summer-milk stations has been done at an average cost of less than $1000 a year for the last nine years. It can be done in any city for a cost of little more than $1000 per year for each 200,000 population. The results are not all attributable to milk. Improvement in the practice of medicine has had much to do with these results:

ALL OF THE DEATHS UNDER FIVE YEARS FROM ALL CAUSES IN THE CITY OF ROCHESTER, N. Y.

	July Deaths.		August Deaths.	
	Under 1 year.	1 to 5 years.	Under 1 year.	1 to 5 years.
1888	90	28	118	25
1889	133	18	83	24
1890	88	18	94	18
1891	81	15	93	17
1892	101	26	104	34
1893	99	16	85	19
1894	82	12	72	29
1895	92	16	56	11
1896	108	18	59	17
	874	173	764	194
		874		764
Total July deaths		1047	Total August deaths	958
1897	43	7	44	13
1898	47	11	47	10
1899	51	33	44	18
1900	50	16	54	14
1901	37	12	38	8
1902	26	5	43	20
1903	32	16	34	18
1904	15	11	43	6
1905	53	10	60	13
	354	121	407	118
		354		407
Total July deaths		475	Total August deaths	525

Total deaths under five years, July and August, first period, nine years, without municipal milk stations..... 2005
Total deaths under five years, July and August, second period, nine years, with municipal milk stations..... 1000

In this work it has been our aim to show people what may be accomplished by an attempt to furnish clean milk for children. It is our belief that most babies become sick because they are infected by the bacteria and poisons of stable manure contained in dirty milk, and that to keep children well it is necessary to protect them from the dirt in milk just as much as we would protect them from diphtheria or scarlet-fever infection. Aside from the work done to insure that milk shall have a nutritive value, as provided by statute; that it shall have a low bacterial content, as indicating a minimum amount of stable and barnyard contamination; that infectious disease may not be brought to the consumer through sickness either on the premises of the wholesaler or retailer, our municipal milk stations have been established as demonstration plants from which the public may learn through the press, through our pamphlets, and from our nurses the value of clean milk to the child. Further than this, with the aid of the Rochester Academy of Medicine, we have certified to the milk of those dealers who give us assurance that for a living price, a few cents additional charge, they will furnish clean milk for those willing to pay for it.

We have done these things at a cost so low that it is hardly worth mentioning. Aside from the expense of the work of the Health Bureau, which any city may well afford; aside from the expense of the milk commission for certifying it, borne by the Rochester Academy of Medicine, the cost of this work for our city of 185,000 has averaged about $1000 a year.

There is, however, more work that may be done. With your great city, with its tens of thousands of children, the problem of clean milk is much larger than it is with us. In your city thousands of children are born every year; thousands of these children die every year. You have with you every year thousands of children under five years of age dependent for their very lives upon milk, that most perishable of foods. This food comes to your city, as it comes to other cities, from thousands of farms within a radius of hundreds of miles, and is handled by hundreds of men. Are you willing to do what you can to protect the babies of your city? These babies are the future citizens of your State. Will you help to stop all the suffering that annually comes to these thousands of children? Will you help to prevent the despair of the father, the anguish of the mother? Your State and city governments are doing much to help in this work, but State and municipal officers need the help of every citizen. Portable laboratories and milk stations are needed by all of the people, the rich as well as the poor, especially in summer. Certified-milk plants are needed, and here is work for the physician. There is a great opportunity for the philanthropist to join hands with the citizen and the physician in this work. The philanthropist may, without danger of doing harm

with his money, establish for a limited time, until their value has been proven, a number of field milk inspectors. These inspectors, most of whom should be women, preferably, trained nurses, should inspect and report to a board having charge of the work the condition of the farms and dairies supplying milk to the city, the board or committee, in turn, forwarding these reports to the health authorities. These inspectors should be paid for by private philanthropy, but should receive such appointment from the State as would enable them to gain access to the premises they desire to investigate. The duties of these inspectors should be both educational and advisory for the milk farms, the dairyman, and the consumer. Such inspection would direct the attention of both the consumer and the producer to the drainage, ventilation and other sanitary needs of the farm and dairy, and they would serve to awaken the public to the necessity for clean milk for babies.

THE PRODUCTION OF CLEAN MILK AS A PRACTICAL PROPOSITION.

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THE THIRD OF A SERIES OF POPULAR LECTURES ON MILK, DELIVERED IN M'COY HALL ON TUESDAY, MARCH 6, 1906.

THE necessity for pure milk supplies for large cities has in recent years come to be recognized by sanitarians as of great importance. Questions of water supply and sewage disposal have, in general, been successfully solved in the larger and older cities, but the milk problem has not only been neglected, but has increased in complexity and seriousness as the cities and urban communities have grown in population, and thickly-settled suburbs have encroached upon the regions formerly devoted to agricultural pursuits. In each case questions of quantity and quality have to be met. The problem of milk supply is, however, differentiated from that of water supply with respect to source and method of transportation. The water for a city is, in general, derived from a single large source, or few sources, in areas which may be so safeguarded as to prevent pollution with pathogenic or intestinal bacteria, and its transportation to the consumer is not attended by serious danger of infection. Milk, on the other hand, is obtained from a large number of small sources—the individual farms; it is constantly subject to contamination because of the methods of handling from the time it is drawn from the cow until it reaches the consumer.

As milk is almost universally used as an article of food, especially for infants and young children, as well for others of weakened or impaired vital resistance, it is of the utmost importance that it should be wholesome, sweet, and clean. No one questions the nutritive value of good milk, but it is becoming more and more

widely believed that much of the sickness and many of the deaths of young children are due to impure and dirty milk, that is, milk which contains harmful bacteria and other substances naturally foreign to milk as it is secreted by the healthy cow. It should always be recognized that milk is a substance of great food value for microbic life, and especially for those organisms which can cause lactic fermentation and putrefactive changes. As these bacteria readily find their way into milk unless great care is taken to prevent them, the possibility of an enormous increase in numbers and a corresponding increase in the amount of decomposition products is a matter of great importance. Thus, paradoxically, the fact that milk is a rich food becomes a source of weakness when we consider it from the standpoint of industrial or economic bacteriology.

The real milk problem which we have to consider is, I believe, not chiefly how a sufficient quantity of milk with a definite percentage of fats and solids may be obtained, but how the inhabitants of the cities shall be provided with milk which is sweet, clean, free from questionable substances, such as preservatives, and low in bacteria. In other words, how may we supply normal milk? Normal milk when drawn under aseptic conditions from the udder of the cow may be quite sterile, but generally contains a small number of bacteria. As these are of harmless character, the milk may be called actually clean, for while it would eventually become sour under ordinary conditions, it should easily keep for days and even weeks when put in a cool place. By "clean milk" we mean, then, milk that approaches closely normal milk in its constituents. Ordinary milk, on the other hand, is almost certain to contain dirt from various sources and also large numbers of bacteria of widely-varying types. Of these some may be classed as harmless or relatively inactive, but the number thus behaving is comparatively small. A second class is the group of organisms derived largely from hay of the stable or from the dust in the air. These organisms are not likely to be disease-producing in a specific sense, but are undesirable in milk to be used as food, because they bring about more or less rapid fermentation with products which may or may not be harmful. Most important, however, are the acid-producing and putrefactive bacteria, which are likely to be very abundant in carelessly-drawn milk. These, although apparently gaining entrance from the skin and hair of the cow and from other external sources, are really derived very largely from the intestinal tract, and drop into the pail in large numbers unless special care is taken to keep the body of the cow in a clean condition. These are the organisms which bring about a rapid fermentation of the sugar of milk to lactic acid, and which, acting on the albuminoids, ultimately produce putrefied or "rotten" milk. Because of the secondary changes which take place in the proteids, we may have developed in the milk chemical substances, products of putrefactive decomposition, which are unwholesome or actually poisonous, and may give rise to severe intestinal disorders.

It is also possible that there may be specific pathogenic bacteria in milk, as has been shown by the numerous epidemic outbreaks which have been traced to infected milk. Swithinbank and Newman have pointed out that up to 1901 there were no less than 330 such epidemics proved to be due to milk, and there are unquestionably many more where the responsbility has not been fixed.

In view of what has already been said, it is easy to surmise what might be the sources of these organisms. The bacteria of ordinary dirty milk may come from the air, from the dust of the barn, from the food of the cattle, from the body of the cow, from the clothing and hands of the milker, or from unclean utensils. The organisms of the last-mentioned class, the disease germs, come essentially from one source only, namely, from infected persons who have handled the milk at some period in its transfer from the cow to the consumer, and have transmitted the germs from their own bodies or clothing to this medium.

By the time the milk ordinarily produced has reached the city for delivery to the consumer the number of bacteria has enormously increased. Bacteriological investigation has shown that the number of bacteria per cubic centimeter in the milk of various cities varies from all the way from a few thousands to many millions, so that it is difficult to give average results which are at all satisfactory. Great variations are found even in the milk of a single city, according to the source and age of the milk. Thus Park found the number of bacteria in New York milk to vary from 52,000 to 25,000,000. St. Petersburg milk was shown by Zakherbekoff to vary from 450,000 to more than 1,000,000,000 per cubic centimeter, and the milk of many cities has been shown to contain from 5,000,000 to 100,000,000 germs. Such milk cannot be regarded as fresh, pure or clean, and it is to overcome and to guard against this condition that the activity of boards of health and sanitarians is now being directed in some quarters. As a first move toward betterment of the milk supply, the city of Boston has passed an ordinance prohibiting the sale of milk containing more than 500,000 bacteria to the cubic centimeter, or which has a temperature of more than 50° F. when it reaches the city. How many bacteria it contains when it reaches the consumer is a point which might be worth considering, and will probably be done later.

It may well be asked how the conditions which have been implied may be improved. It is evident that they should be improved, and I think that it is furthermore evident to the minds of those who have studied this question seriously that they can be improved. Two lines naturally present themselves—first, the passing of laws or ordinances requiring much stricter observance of precautions in the production and handling of milk, or second, the treatment of milk in some way so as to destroy the bacteria. By this method the milk might be satisfactory from the standpoint of numbers of bacteria, but not necessarily clean.

In my opinion, it is by working along the first of the two lines suggested that the practical solution of the milk problem will be

reached. So long as there is no form of supervision exercised by the officials having the power to act in this matter I think we may expect to have an unsatisfactory condition of the milk supply, at least unless the milk business is conducted on a different basis from the existing one. Whether federal, state or municipal control will be best in the end cannot now be told, but I am inclined to believe that close inspection can be as well administered by the local authority as by the representative of the federal government. In any case I believe official supervision should be accompanied or preceded by a campaign of education such as is now being conducted in Baltimore. Both producers and consumers need to have presented to them in a simple, direct way the facts regarding the nature of milk, the possibility and ease of its contamination by bacteria, its rapid decomposition, and the undesirable character of the products of such a change.

Clean milk is more than a demonstrable possibility; it is practicable. There are scattered through the country numerous dairies, milk from which is shown by examination to contain at most but a few hundred bacteria per cubic centimeter, and to be free from dirt, cow manure, and other foreign matters. In order to obtain such milk the strictest cleanliness must be observed in the stable, in the milk-house, or wherever the milk is handled. Intelligent supervision and careful work are what is shown to be necessary for the production of clean milk, and this is the goal towards which the efforts of the sanitarian and public official should be directed.

Many of these so-called "model" dairies have been started as pet projects of the wealthy, and have not been run for profit, but for the gratification of a special wish of the owner. Many of them, however, and the number is probably increasing, have become self-supporting, as milk from such dairies rightly commands a higher price than the ordinary farmer's product. I believe the value of these "sanitary" or "model" dairies has been twofold. In the first place, they have provided a pure and wholesome, though high-priced, milk. Even though the quantity has been insignificant as compared with the total volume of milk consumed, it has been distinctly advantageous to the community.

The second way in which the value of the model dairy has been manifested, and from the point of actual public service the more important one, is as a living demonstration that the key to the milk problem lies in scrupulous cleanliness in all details of production, care and handling of the milk, the proper inspection, care and treatment of the cows, and the supervision of those who have to do with the milk in any capacity before it goes to the market. Each of these dairies has been a sort of missionary station from which has been preached the gospel of cleanliness in a most effective way. Even if these dairies have not been financially profitable to the owners, the benefits which they have conferred on their immediate environments has been inestimable. In my opinion, the "model" dairy serves, as its name indicates, as a model, and in imitating its practices as far as possible upon the ordinary farm we are to elimi-

nate to a remarkable degree the objectionable features which are now so apparent in the industry as at present conducted. How far this imitation may be carried I shall discuss presently.

The second method of securing milk low in bacteria is by the process of pasteurization. This has sometimes been suggested as a solution of the milk problem. Pasteurization consists essentially in the heating of the milk to such a temperature that a very large percentage of the organisms in it are destroyed. Pasteurization differs from sterilization in that the heat applied may be very much less, and consequently the change brought about, especially on the proteid, may be very much less marked, and, in the second place, because in pasteurized milk there are still some germs left alive, while in sterilization all living things are destroyed. When, however, pasteurization is carried out practically, as is done by the use of large pasteurizing machines, the percentage of bacteria destroyed is generally not quite as high. In theoretical pasteurization the milk is heated for a period of 15 or more minutes at a temperature of 157° to 170° F. Pasteurization as practiced commercially consists generally in the heating of the milk to a temperature of 160° to 165° F. and for a period varying from three-fourths of a minute to one and one-half to two minutes. If pasteurization is carried on below 165° F., very slight chemical change is brought about in the components of the milk. Above 165° F. the milk is slightly changed, so that the fat globules do not rise as readily and the milk does not show as well marked a "cream line." The process of pasteurization has been developed until at the present time it is conducted on a very extensive scale, for it seems to be the easiest available present means of reducing bacteria to the number normal to pure milk. Probably about one-fifth of the milk sold in Boston has been treated in this way.

Of these machines there are two or three types, all, however, similar in one respect, namely, that the milk comes in contact with a cylinder heated by steam, and is quickly raised to the pasteurizing temperature, 155° to 165° F. Some of these machines will pasteurize as much as 6000 pounds per hour. When these machines are run at the most favorable conditions there should be a reduction of from 97 to 99 per cent. of the number of bacteria. This, however, is not always obtained in practice, because the conditions are not always maintained for the highest efficiency.

The results, so far as the destruction of bacteria is concerned, are dependent on two factors—temperature and time. Given the same time and same temperature, practically the same bactericidal efficiency should be obtained with all the machines, regardless of their type. I wish further to point out a few facts which have a direct bearing upon the relation of pasteurization to the milk problem. It is quite possible, even with dirty milk which has been kept for some time so that the number of bacteria is markedly above the number which we would ordinarily regard as allowable by any reasonable standards, to produce by pasteurization a milk which

might be regarded as excellent judged from the bacteriological standpoint alone.

While such a product may conform to the legal requirements as regards temperature and number of bacteria, it cannot be regarded as equal in food value to a fresh, sweet milk either raw or in a pasteurized condition. It is the writer's belief that all pasteurized milk which is sold should be distinctly designated so that the consumer may know whether he is buying fresh untreated milk or milk which has been subjected to the heating process. Milk which has been pasteurized and is then sold as fresh milk is clearly a sophisticated product, even though it may be more wholesome than the untreated article. Furthermore, the ease with which the number of bacteria may be brought within the legal limit renders it possible for unscrupulous dealers to utilize filthy, half-decomposed milk high in bacteria, and by this simple process destroy the bacteria so that the milk may be sold as clean milk, conforming with the legal requirements. To what extent harmful products (toxins) have been developed in the milk previous to its pasteurization and left unchanged by this process is unknown, but it might be that such poisonous bodies could be present in considerable amount. It seems to the writer that not only should pasteurized milk be so labelled, but that there should be a law limiting the age, acidity, and number of bacteria in milk which is to be pasteurized and subsequently exposed for sale. It must be admitted that such a law would be easily evaded unless rigidly enforced.

While, therefore, the process of pasteurization may be very successfully carried out from the bacteriological point of view, it should be regarded as a means to an end, and not as an end in itself. From the sanitary and hygienic standpoint it goes without question that the major portion of pasteurized milk now sold is far better than ordinary raw milk, yet the fact should not be lost sight of that a pure, clean supply of *natural* milk is most to be desired, as it is of greater food value than the pasteurized product and is free from the objections which may be charged against the latter.

It must be accepted, I think, that by far the major portion of the milk consumed in a large city for a long time to come will be produced upon the ordinary farm, handled by ordinary men, and shipped by the ordinary means of transportation. We must not, then, be too sweeping or impatient in our demands for reforms nor make ordinances or laws which cannot be obeyed.

In my opinion the establishment of a perfect milk supply must be a process of evolution and education, and perhaps a slow one at that, as I have already hinted, but I believe that a great step forward is not impossible at once. I believe that I was asked to come here and give the results of my own actual experience rather than to indulge in theorizing, so before considering the general phases of the question further I wish to give a brief account of my own observations.

It has been my good fortune to act for several months as bac-

teriologist and sanitary inspector for a firm selling milk in the city of Boston and to have practically entire charge of production, at least so far as it was controlled by tests for quality. The business is not a large one as compared with the leading agencies of supply, but handles the milk obtained from about 185 farms situated from 25 to 40 miles from Boston. These farms vary in amount of milk produced from one can to 100 cans per day, and likewise vary in the resources and intelligence and business sense of their owners, but are in general tenanted by a good type of New England farmer.

Before I assumed any supervision some attempt had been made by the firm to instill ideas of cleanliness and to emphasize the necessity for cooling milk. This was undoubtedly of great assistance in my work. Furthermore, the business policy of the firm had been a just one, and superior quality had been rewarded by increased selling price. This apparently liberal policy, really only honesty, was appreciated by the farmers, and they were probably the more willing to accept further suggestions.

As is perhaps well known here, the city of Boston has as yet no milk commission for certification, etc., but the Board of Health has enacted an ordinance forbidding the sale by the dealers of milk containing in excess of 500,000 bacteria per cubic centimeter or at a temperature above 50° F. under penalty of fine. A fairly rigid inspection is enforced, and offenders are warned, or if this in ineffective, fined. It is obviously to the detriment of a milk dealer to be thus haled into court, and most of them, therefore, prefer to engage some bacteriologist or inspector to keep a watch on the milk rather than take the chance of a fine. In my own case I believe I was engaged not merely to get the supply into condition just to clear the law, but to see if a really excellent milk could not be obtained.

I was given free rein to conduct my campaign as seemed best to me. I decided on a system of inspection for bacteria and leucocytes, as conducted also by the city Board of Health, and also upon a personal inspection of the premises and farms as perhaps the best means of approaching the farmers and getting into touch with them. Having been country-bred, and therefore knowing the characteristics of the New England farmer, I undertook to visit personally every farm sending milk, to talk with the farmer and explain the reasons for our inspections, and to suggest whatever means of improvement in his methods and appliances seemed to me to be sensible and practicable.

This program was carried out, all the farms having been visited during the hot weather, when the trouble with cooling, etc., would be at its maximum.

While these farms are scattered over an extended area, the milk is brought every morning, and, in the case of the nearer farms, every evening also, to two receiving stations, where it is mixed and bottled, and put on ice ready for shipment.

The farmers themselves may bring the milk, each from his own farm, but in the case of the more distant dairies the milk is gener-

ally transported by some one of the producers, who carries all the milk from his neighborhood. Thus a number of milk routes are established, and by knowing what time any carrier is due to arrive at the receiving station it is possible to get samples from any farm whenever desired. The farms are all numbered, and each can of milk has attached to it a label bearing its proper number. As the wagons arrive at the receiving station the samples for bacteriological examination are taken by a trained assistant, who sees that the milk in the can is properly mixed before the sample is taken. Each farm is examined in this way at least once a month, sometimes twice, or three or four times if it is necessary. As no regular order of collection is maintained, there is no chance for a farmer to be especially careful on the day his milk is sampled, for his may be selected for examination any day or on successive days. After the samples are collected they are at once taken to the laboratory and plated, and examined microscopically for leucocytes and streptococci. The plating and examination need not be here detailed, as the methods are well known in most laboratories. The examination has a double effect—we are able to determine which farms are sending in milk which by itself would be unsalable owing to the ordinance limiting numbers to 500,000, and which are entirely satisfactory, regardless of the ordinance. Personally, I believe the Boston system a wise one, and that it is well to have a wide margin at first, because it is a condition which the farmer can reach. This limit can probably be lowered at a later time with good effect.

If as a result of our inspection we find that a farm is exceeding the limits allowed by the ordinance, a card is sent directly from my laboratory to the farmer, *i. e.,* not through the office of the company at all, telling him that on a certain date his milk contained a given number of bacteria, and suggesting that greater care and cleanliness will probably remove the difficulty. If his record has been a good one hitherto, a statement is written in to that effect, together with the statement that the lapse is probably accidental. If, on the other hand, the record of the farm has not been satisfactory, the full force of the warning is expressed, viz., that unless improvement takes place at once the company will be forced to exclude his milk.

It is interesting to note that after a warning card is received milk from that particular farm is generally of excellent quality. Although the ordinance does not prescribe a fine for sale of milk containing high leucocytes, such milk is generally excluded by the Board of Health. Examination for pus, as the leucocytes are generally called, leads not to a warning, but to an inspection of the farm and the examination of each cow individually.

In case, then, the milk from a certain farm is high in leucocytes, instead of excluding all milk, an examination is made, and milk from all cows not affected is allowed to be sent as usual. Affected cows are held in quarantine, so to speak, until a further examination shows the milk to be normal again. If this does not occur in the course of a few days, a veterinarian is called in. We consider

that there is danger when we find both leucocytes and streptococci together (leucocytes + streptococci = danger), while the evidence is far less conclusive in case of leucocytes alone, especially as these are likely to occur with a very small number of bacteria.

Although not hired to do so by the company, we are constantly trying to do some research which may be practical in its final application. We have already begun a study of the indol producing bacteria to see if we can determine any relation between their occurrence and total numbers, and to see if they are constantly present in dirty milk and absent in clean milk, and we hope to be able to suggest whether it is probable that these have any relation to intestinal diseases of young children.

The results of our examinations as seen from the accompanying table are to me interesting and striking. These show that in less than nine months the largest percentage of samples grouped arbitrarily by numbers has changed from the one above the legal limit to the lowest of all. Of course, this is due to some extent to the cold weather.

BACTERIOLOGICAL INSPECTION OF MILK.

Percentages of Total Samples Examined, Graded According to Number of Bacteria per Cubic Centimeter, June, 1905, to March, 1906.

Bact. per c. c.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
10,000 or below...	2	5.1	14.5	14.1	26.6	18.8	30	31.8	37.3	33.8
10,000 to 50,000...	17.4	20	23.8	31.1	44.8	41.9	30.5	39.9	32.1	39.9
50,000 to 100,000..	12.5	18.2	14	15.5	15.5	11.6	10.3	10	8.7	7.5
100,000 to 250,000.	25.7	24.3	15.9	16	7.7	12.5	11.1	8.4	11.5	8.6
250,000 to 500,000.	11.8	9	8.9	7.3	2.4	6.2	5.8	2.4	2.4	1.9
500,000 or above..	30.5	23.7	22.9	16	9.1	8.5	12.3	7.6	7.9	8.3

Total samples examined 2148.

Another thing that we have done is to prepare a simple statement, with some suggestions as to care and handling, and the description of some experiments which have been carried out, to show how many very simple things may add greatly to the bacterial contamination of milk; for example, such things as the introduction of hairs, bits of hay and particles of dirt and manure, the effect of washing and not washing utensils, and the effect of time and temperature on the development of bacteria.

From the observations that I have been able to make as a result of this and earlier practical work on this subject I am led to believe that the farmer's side of the case has not always been fairly considered. The ordinary consumer knows little, and the ordinary contractor cares little, as to the cost of production of milk and the labor involved in securing a pure supply. Even those who have taken the trouble to study the question to some extent sometimes fail to take a thoroughly practical view and see the farmer's side of the matter.

For example, it is sometimes stated in discussing the sanitary phases that certain kinds of barns, concrete construction, expensive apparatus, etc., are necessary for the production of decent milk. Should such equipment be demanded, how many farmers could

meet the requirements, and what return would they receive on the investment?

That clean milk may be produced with moderate-priced or even ordinary barns I am convinced as a result of my inspection work. One should not expect, however, to get as fine results under these conditions as with more expensive equipment. While the model dairy may give us milk containing never more than a few hundred bacteria, the ordinary barn may yield a few thousand, but even this is a great step in advance. I am inclined to regard milk containing below 50,000 bacteria per cubic centimeter as fairly clean and that below 10,000 as very clean.

At the present time, with fierce competition and the low price of milk, the farmer is perhaps doing all he can afford. Excessive demands as to care and cleanliness in handling will be looked upon with disfavor not because the farmer does not wish to produce good milk, but because he cannot do so at a fair profit. I believe that the price of milk should be raised all along the line. It is a rare farmer who can afford to produce milk for three or three and one-half cents per quart, in New England at least, and send it to the city in a clean and satisfactory condition.

A friend of mine who is engaged in this business as a side line of effort told me recently that a farmer could not produce clean milk for less than five cents a quart. I confidently believe that if the farmers were to receive five or six cents per quart, and were told how to produce clean milk, many of them would do it. This would mean, of course, that milk should cost the consumer 10 cents, which is a reasonable figure as compared with the cost of other foods. As Marshall has pointed out, if the consumer in the city finds that the milkman has raised the price of milk one cent, he immediately concludes that the farmer is making so much clear gain. If a merchant raises the price of a commodity, he at once conveys the idea that the change is due to an advance in some raw material. As a matter of fact, the cost of feeding the cows has actually doubled in a few years, yet the farmer is expected to take the same price for his milk. Until some readjustment of costs takes place I think that we can rightfully expect but little more in the way of care from the farmer.

Competition is not without its influence. The careful farmer who knows the cost of his milk and charges for it accordingly is likely to find that his good milk is soon crowded out of the market and replaced by that of a poorer quality. The remedy for this trouble lies largely with the consumers. If they demand a good quality of milk and are willing to pay for its actual value, the milk will be produced. If, on the other hand, a 10-cent milk is demanded at a cost of five cents, the demand will not be met, because it is absolutely impossible for the farmer to produce high-grade, clean milk which can be sold in the city at this price. It seems to me that a satisfactory clean-milk supply is possible and practicable if the following suggestions can be put in force:

1. An intelligent, sympathetic, but rigid inspection or super-

vision of the farms, excluding milk from all those sources where the farmer is not inclined to do what he can to fulfill cleanly conditions.

2. Dissemination of information to the farmer of needful points as to the care and handling of the milk at the farm, and, in fact, to all those who have to do with the handling of the milk before it reaches the consumer.

3. Proper regulations and inspection of the handling, transportation, etc., with perhaps an ordinance, as in force in Boston, setting up a bacteriological standard for salable milk.

4. A higher selling price to the farmers in return for the extra care in the production of clean milk.

Of course, the importance of cleanliness must be impressed on all from the producer to the consumer, as, after all, the whole question comes down practically to a question of cleanliness in handling.

OBITUARY.

Dr. Thomas Sargent Latimer, professor of principles and practice of medicine in the College of Physicians and Surgeons, died at his home in Baltimore on May 16, aged 67 years. Dr. Latimer was graduated at the University of Maryland School of Medicine in 1861. He entered the army of the Confederacy as a medical officer and served throughout the Cival War. After the war he came to Baltimore and became resident physician to the University Hospital. He was one of the founders of the College of Physicians and Surgeons, and was for many years professor of medicine. In 1884 he was elected president of the Medical and Chirurgical Faculty. Up till about a year ago Dr. Latimer was one of the leading consultants in Baltimore. His death was due to nephritis, which caused his retirement from teaching and from practice nearly a year ago.

Dr. Charles Carroll Bombaugh died at his home in Baltimore on May 24 after an illness of about two weeks. He was graduated in medicine at Jefferson Medical College, Philadelphia, in 1853. During the Cival War he served as a surgeon in the Federal army. He came to Baltimore in 1864 and was for a short time editor of the *Baltimore American*. Dr. Bombaugh possessed excellent literary gifts, and was a keen rambler in the byways of literature. Many years ago he published an interesting volume called "Gleanings for the Curious." More recently he published a work on "Stratagems and Conspiracies to Defraud Life Insurance Companies." Dr. Bombaugh had a talent for versification and wrote a good many occasional poems, one of the last being the celebration ode for the centennial of the Medical and Chirurgical Faculty in 1898.

PROCEEDINGS

OF THE

MEDICAL AND CHIRURGICAL FACULTY

OF MARYLAND

Secretaries of the County Societies are earnestly requested to send reports of meetings and all items of personal mention and of local or general interest for publication addressed to Dr. Alexius McGlannan, 847 North Eutaw Street, Baltimore.

SPECIAL NOTICE CONCERNING ILLEGAL PRACTITIONERS.

THE Board of Medical Examiners have had printed a complete alphabetical list of all the physicians who are registered in Baltimore city. Copies of this list can be obtained at the library. If members of the profession will send the name of any doctor practicing or hanging out a sign, indicating an intent to practice, and whose name does not appear on the list, to Dr. Harlan, at 516 Cathedral street, it will be a material aid in the effort now being made to prosecute those practicing in the city who are not properly registered.

CORRECTION.

THE papers of Drs. Chatard and Eyster which appeared as part of these transactions in last month's JOURNAL should have been published as part of the report of a meeting of the Johns Hopkins Medical Society.

THE ROLE OF PURE COW'S MILK IN INFANT-FEEDING.

By A. Jacobi, M.D., LL.D.,

New York

ANNUAL ORATION.

NINE previous lectures have made you acquainted with good cow's milk and the methods of obtaining it and keeping it fresh and germ free. Instruction on the topic of infant mortality and the dietary prevention of tuberculosis, cholera, typhoid, scarlatina, and diphtheria has been thrown in for good measure. Finally, I have been requested to speak to you on the value of your good and pure Baltimore milk in the feeding of your babies and those of your rich and poor neighbors.

Rich and poor! As the breasts of the rich and the poor mother contain the same natural food, so its substitute should be the same for the demands of the rich and the poor baby. Democratic nature knows no difference of classes.

It is true a great Boston pediatrist has blamed New Yorkers for insisting upon supplying the poor and rich alike, and thereby rendering the solution of the feeding problem more difficult. But I have ever been of the opinion that those who are to till the soil, to build our roads, to man our ships and factories, and add to the wealth and power of the country should, while infants and children, be prepared for their tasks by a competent food.

The immense literature of the subject is not so well known as it appears to many. I have been mixed up with good and bad milk these 50 or more years, and have come to the conclusion that I should wish to see the end of the discussions. After some preliminary attacks, I tackled the subject in the first volume of that epoch-making Handbuch of Carl Gerhardt.

In that year, 1876, I collected a list of a thousand books, pamphlets, and essays on woman's, ass', goat's and cow's milk—and still they came and are coming. There are tens of thousands in all languages. In extenuation of my many serious shortcomings I may claim that I have not read all of them. When a play has a run of 600 representations you go to one, perhaps, but not to the 600. It is only Homer or Shakespeare or Goethe you can read all the time. Besides, your limited time prevents me from showing off any sort of real or apparent erudition. The latter you do not care for: the former you have in abundance, for you are part, or neighbors, of Johns Hopkins.

Bad and germ-filled cow's milk is a danger to digestion, and is apt to disseminate infectious and contagious diseases. These dangers are avoided when cow's milk is pure. It is in the interest of those who are alive and anxious not to be killed, in the interest of

the city and State, and of mankind, present and future, that milk *should* be clean and pure. When it has these properties it may be used for infant-feeding, but *not* in its pure, unmitigated, unmodified condition. It is true there are babies that no improper feeding, no indecent handling, no coarse or over civilized maltreatment will destroy. These ironclad young specimens of mankind are the excuses for the teaching—mainly in Paris, France, but also in its suburbs located in America—that pure cow's milk is the proper substitute for woman's milk. That is a mistake. Exceptional successes do not, as a sily proverb has it, prove the rule. Cow's milk is no woman's milk, nor can any cow's milk ever so well modified or changed or adapted be equivalent to a healthy woman's good milk. The occasional possibility of obtaining good cow's milk, the theoretical teaching disseminated in good and bad books and pamphlets that chemical compositions suffice for the physiological demands of the young infant organism, and the imperturbable ubiquity of the proprietary-food vendor and advertiser have worked a great deal of harm in encouraging the reluctance of women to nurse their own babies. If the present and future babies are to live as hearty and competent citizens of this republic, no poverty, no cruel labor law, no accident, no luxurious indolence must interfere with the nursing of infants. Not nursing one's own baby comes next to refusing to have any. Antiquity did not know of artificial infant-feeding. The first information we have of it dates at 1500. Turks, Arabs, Armenians, Kurds, the Circassians, and the Fellahs of Palestine have no artificial infant-feeding. Even wet-nursing was not indulged in in old Hellas, for Hippocrates does not even mention it. It is true wet nurses were permitted amongst the Persians and the ancient Indians, to whom Soranus gave careful instructions on the selection of a wet nurse, as they were employed by the rich Anglo-Saxons of the Middle Ages and amongst the ancient Romans. Even that, however, was complained of. Tacitus mourns that there were no longer any great men in Rome because they were nursed by slave wet nurses. The stout-hearted Roman, in the interest of his country, was not satisfied with having his Roman boy suckle a vigorous barbarian woman. It is we that expect the future citizens, statesmen, savants, and pioneers to thrive on proprietary foods and milk mixtures.

But there are women that have all the loving fondness and all the sense of a mother's responsibility, but no milk. Since the more appropriate ass' milk is not obtainable, theirs are the cases for pure cow's milk, as properly modified as its nature will permit.

Pure cow's milk—no matter whether raw or boiled—should not form the exclusive food of an infant. It gives rise to vomiting of hard curds and to constipation, with its results—indican and diacetic acid in the urine and secondary irritation or inflammation of the kidneys, also pyelitis. When practitioners will get into the habit of examining the easily-obtainable urines of little children, and consent to learn the fact that nephritis is a common disease

in the smallest of babies—commoner, indeed, than in the old and senile—they will appreciate the unfavorable influence in that direction of even the purest cow's milk which is fed unmixed. One of the frequent legitimate outcomes of constipation, when local irritation is the result of hard milk curds, is diarrhea, which should not be considered as an innocent relief to the overcrowded gut, but will turn into the bad forms of microbic enteritis, the accurate knowledge of which we owe to Booker of Baltimore, Escherich of Gratz-Vienna, and Czerny of Breslau. Not a few cases of fatal atrophy owe their origin to the overfeeding with unmodified pure milk on account of the dyspepsia caused by it. Finally, though rickets is more readily produced in the infants closely confined in hot and airless rooms, mainly during the cold seasons, one of its causes is improper food materials, amongst which unchanged, undiluted milk takes a high rank.

All of this proves that pure milk should not be given as an exclusive food. I repeat that many a baby will live through such an exclusive feeding. But mere survival is not the only object of a child's bringing up; what you want is persistent good health and vitality and resisting power.

What is cow's milk, and what is human milk which it is to replace? Are they always alike? By no means. It is not much easier to define the nature of a good cow's milk than that of a good human breast milk. We appreciate the clinical differences of the milks of different cows, or different herds, or races. All of them are good pure milk, however. But these differences are by no means equal to those met with among women. A baby may thrive on the milk of one woman, and not on that of another. That is why the substitution of a wet nurse for the mother is not infrequent. Even old Soranus speaks of exceptional cases of infants that thrive better at the breast of a nurse like a plant that requires an occasional transfer to a strange soil. According to Monti, the constituents of woman's milk are only "more or less constant." That means inconstant. Johannessen and Wang (*Z. f. phys. Chemie,* XXIV) found in them the albumen to range from 0.9 to 1.3 per cent., the fat from 2.7 to 4.6 per cent., and the sugar from 5.9 to 7.55 per cent. Still, they were all good milks. They also found the amount of sugar to be less and that of fat and albumen larger toward the end of a single nursing, and the fat to reach its minimum in the course of the night. Biedert (than whom there is nobody more accurate and searching) found the nitrogen in woman's milk to vary from 0.129 to 0.192 per cent. and the fat from 1.67 to 3.35 per cent. at equal periods after birth. But these differences are not found in the same woman. Each has a fair stability in regard to nitrogen and fat, exactly like a cow. Therein lies one of the reasons why a fair amount of equality of results is obtained only when the milk of a herd is analyzed instead of that of a single cow. It might strike you, however, as quite natural that as a baby may thrive at the breast of a woman after nearly being destroyed by the milk of another healthy woman, the same

thing may take place when you feed your baby on the milk of a single cow. He may not thrive on it, while the substitution of another cow, with a different milk, may be appropriate. And the great probability is that the average milk of a herd, the employment of which I advised 40 years ago, will so dilute the improper qualities of the milk of a single cow by the mixture with that of 50 others as to render them uninjurious.

Of the thousands of recorded analyses of human milk and of cow's milk no two are identical. Besides, modifications of breast milk occur during nursing from minute to minute, from morning to night, on account of changes of food, state of health, during menstruation, periods of lactations, diseases, or emotions. *And they are all good breast milks and perfectly digested by the individual babies.* Even moderate changes in the health of the baby make few difficulties. The baby will adapt the quantity of the accustomed food to its pathological changes—gastritis, enteritis, or other feverish diseases—provided the proper amount of water is supplied to the baby while it is more thirsty than hungry. If exactly the same physical and chemical composition were required, the milk of our mothers would have killed every man and woman in this hall.

It has occurred to me, as it has to others, that if there were premeditation in this changeability of the milk of single women and of single cows it is surely successful. The changes in the relations of constituents mean all the proteids and carbohydrates, including sugar, and the salts. It is mostly the latter that cause the taste. In the milk of his own mother or his own cow, if, by a happy accident, the proper one has been selected, the baby has the correct composition and a proper *change*. If there were no such *changes*, he would lose his appetite and health. The uniformity of the food, though sufficiently nutritious, in prisons, boarding schools, boarding-houses and hotels, and its influence on appetite and taste and health, some of you may be acquainted with. I am. Your appetite gets lost, your digestion impaired, and your weight and health reduced; if not, perhaps, ill-nutrition shows itself in adiposity. And the baby? Between his natural meals there is a diversity in fat, albumen, and sugar and salts. Furthermore, he takes as little or as much as he pleases. When he is fed artificially, however, the poor thing gets six ounces or eight ounces under the doctor's or nurse's orders—willy-nilly—of the same, gradually more and more unpalatable, because undiversified, mixture or modification or Walker Gordonation. Statistics are a fine method of proving things when carried far enough and blended with intellect, which need not be the rule. For instance, an artificially-fed baby thrives wonderfully on a certain mixture for two or three months. Miraculous result! The same end is obtained in other cases and eulogized in a mercantile firm's circulars. They swear they never lie. Then follows dyspepsia, obesity or diarrhea, finally, perhaps, scurvy. These are not chronicled by the tradesman, but perhaps by medical observers as the result of that very food. Correctly,

it is true. Why? Is it that very food on which others have been doing well? No. The fault may lie in the tedious uniformity of that very food. That is why you may see scurvy even when you feed sometimes a mother's doubtful milk, or more times cow's milk, pasteurized, boiled or sterilized, or proprietary foods, or what not. From your own experience you know all about what is considered correct feeding. Your milk is pure, is nearly germ-free; you know and insist upon a certain percentage of fat in it; it is pasteurized or sterilized just so many minutes; you are imbued with the gospel of top milk, boiled water, lime water, the bottle, the temperature, the number of ounces, week in, week out, month in, month out. Indeed, we allow ourselves to be controlled by mathematics and chemistry. If nature were as pedantic as we are, we should all be shaped over one last, in one crystalline form. There would be no harm could we men all look like Welch or Osler, but the world would be less interesting, after all. I say it is a good thing for a baby to be fed on his mother's milk. It will change at frequent intervals, though in physiological limits. Consequently the pedantic uniformity of laboratory feeding according to ironclad rules is not natural. The baby's digestive organs have to perform physiological functions, and are not governed by the chemistry of the test tube. Even L. Emmet Holt and William V. Parks, the famous apostles of close-percentage modification of milk, say that "although desirable in difficult cases, it is not necessary in order to obtain excellent results in the great majority of infants, and a certain adjustment of a healthy infant to its food is usually soon secured." That is what I have been preaching these nearly 50 years. But, then, it did not look as scientific, empyritic, ironclad, and I am neither a Holt nor a Park!

Cow's milk, when ready for consumption, is furnished to the baby in different ways. Some of these ways are tolerated by many, some by the vast majority, none in every case. Pure cow's milk is given unchanged and raw, or it is pasteurized or boiled or sterilized, or it is mixed in order to accomplish certain ends. As in most questions of hygiene and medicine, theory and practical experience must go hand in hand. In the feeding of infants nothing has been more detrimental than the repeated attempts at solving a physiological problem by the sole aid of chemistry.

The caseins of the milks of different animals vary in quantity and quality. The quantity—that is, percentages—appears to be connected with the rapidity of the growth of the animal from which the milk is taken. According to I. von Bunge, the doubling of a body weight takes place in the new-born of man in 180 days:

		Per cent.
Man in 180 days	Milk protein	1.6
Horse in 60 days	" "	2
Cattle in 47 days	" "	3.5
Goat in 22 days	" "	3.7
Hog in 14 days	" "	4.9
Cat in 9½ days	" "	5.2
Dog in 9 days	" "	7
Rabbit in 6 days	" "	10.4

There are other differences, both biological and chemical. Wassermann and Schütze (*Ges. f. innere Med.,* 1900) injected 10 c. cm. of sterilized cow's milk under the skin of rabbits daily, a fortnight in succession. After that time their blood serum acquired the property of coagulating cow's milk—that is, its proteid—but not that of any other animal. Other animals were treated similarly with goat's milk, with the result that their blood sera would coagulate the albuminate either of goat's milk or of human milk, respectively. In every case the specific coagulating effect was observed in that kind of milk only with which the animal was previously treated.

There are also important chemical differences between the casein of cow's milk and woman's milk. They are, according to Immanuel Munk (*Virchow's Arch.,* CXXXIV), as follows: Total nitrogenous substances in cow's milk, 15.7 per cent.; in woman's milk, 15.76 per cent. Of this total sum there is in extrative materials in cow's milk 6 (4.8 to 8.6) per cent.; in woman's, 8.7 per cent. In his calculations the albuminoids in woman's milk amount to 1.19 to 1.37 per cent. There is more syntonin in cow's-milk casein and more lime (6.6 per cent., compared with 3.2 per cent. in woman's milk—Lehmann); more phosphorus in woman's (0.84 per cent.) than in cow's milk (0.68 per cent.); less sulphur in woman's milk (0.74 per cent.) than in cow's milk (1.11 per cent.). In "Lab" ferment the casein of cow's milk coagulates in coarser lumps than woman's milk. These lumps are modified by the introduction of milk sugar, of fat, of chloride of sodium, or of dextrinized or other flours.

Again, the casein of woman's milk is not so easily thrown out by acids or salts as that of cow's milk, and is more readily dissolved in an excess of acid. Wroblewski demonstrated that woman's casein retains during pepsin digestion its nuclein in solution. *This* protein, with its ample supply of phosphorus, is fully digested. Artificial gastic juice, however, does not fully digest the nuclein of *cow's* casein, of which a "paranuclein" is deposited undigested and undissolved.

According to Schlossman, of the proteins in woman's milk 63 per cent. are casein, 37 per cent. lacto-albumen, the latter of which is absorbed directly. There is, moreover, according to Wroblewski, in the human milk another proteid, rich in sulphur, poor in carbohydrate, and, according to some, albumoses and peptones, that also would be directly absorbable.

Of nucleon (V. Wittmaack and M. Siegfried, *Zeitsch. f. phys. Chem.,* XXII) there is contained in cow's milk 0.057, in goat's milk 0.110, and in woman's 0.124 per cent. In cow's milk the phosphorus of the nucleon amounts to 6 per cent. of the total amount of phosphorus contained in the milk; in woman's milk 41.5 per cent. That explains why good cow's milk, with its inorganic phosphates, may give a baby rhachitis, while *good* breast milk does not do so at all. After all, between the 3½ per cent. of casein contained in cow's milk and the 1 or 2 per cent. of casein

contained in human milk there are essential biological, physical, chemical, and clinical differences.

Similar facts may be stated in regard to the *fat* of the two milks.

Fat, that is, cream, is added to cow's milk for two alleged reasons—first, to increase the nutritiousness of the food, and second, to enhance the digestibility of the casein. Now and then, however, you meet with an author—Monti, for instance; Jacobi another, for instance—who considers a high percentage of fat injurious. On the other hand, Schlossmann, quite a rising authority, declares the belief in the injuriousness of fat "antiquated." In our country the several modifications—those of Rotch or of Holt—are very positive, or have been so, in the demands of a high percentage of fat.

I prefer a low percentage of cream in infant-feeding for the following reasons: First, the normal stools of the infant contain unabsorbed fat, no matter whether fed on mother's or on cow's milk —9 per cent. of the ingested fat according to Wegscheider, 5.9 or 5.3 per cent. according to Heubner. Knöpfelmacher proved that the infant expelled much more olein, derived from unabsorbed milk, than the adult. As such a quantity is expelled and proves unutilized, useless, superfluous, it does not seem rational to increase the fat ration beyond what is natural or required. Second, woman's milk and cow's milk have nearly the same percentage of fat. Bunge has 3.8 per cent. for woman's milk, 3.7 for that of the cow. Marfan gives the same figures, supported by six first-class authorities. Why, now, should fat be added, equally in summer and in winter? If our babies were all Esquimaux of Baffin's bay, fat would be, or might be, required. The parents live on fat. Babies exposed to the cold of our winters might tolerate additional fat, but those who live in a temperate climate or the summer temperature of our dwellings all the year round should have less fat and be less exposed to the consequent elimination of ammonium in the urine, indicating acid intoxication. This remark is absolutely valid when no dilution takes place, though it be seemingly not justified when the milk is diluted and the fat percentage thereby reduced. But experience teaches that the babies thrive best on less fat. Formula No. 2 of the Nathan Strauss Laboratory, which has been furnished to tens of thousands of babies, reads as follows: Water, 90.11; solids, 9.89. The solids not fat are 7.70; there are 2.19 fat, 5.56 cane-sugar, 0.39 ash, and 1.75 proteids. This is meant for babies from four to eight months old. On that they thrive. And a similar composition I have used these 50 years of private and institutional practice. The first of four formulae supplied in Chicago to very young infants contains fat 1.5, milk sugar 5, and proteids 0.5. Third, there is a chemical and a physical difference between the fat of the two milks. Woman's milk has more oleic acid than cow's milk. Woman's milk contains its fat in a finer emulsion, and holds from two to four times as many fat globules as are contained in equally fat cow's milk (Schlossmann). This condition makes it more digestible. It is assumed,

and reasonably so, that the fine fat globules are absorbed directly through the epithelia of the intestinal villi. Moreover, cow's-milk fat before it is used undergoes changes. When taken after slow rising it is apt to be acidulated; when sterilized and centrifuged it is changed chemically and physically; when frozen it separates from the milk and does not mix again.

There is another important difference between human and cow's milk—in their enzymes. By that term we mean digestive properties, which may vary according to the animal furnishing the milk. They digest mainly the fat of human milk, and are absent from cow's milk, which contains its own particular enzymes.

All of these facts and considerations, and the low percentage of fat in ass' milk, which was known to agree best with nurslings and to be inferior to woman's milk only (according to Vernois and Becquerel's analyses made 50 years ago, also according to Parrot, West, R. von Ranke, and Klemm and Marfan), have led me to reduce rather than to increase the fat of cow's milk used for infant-feeding. I meet with no fat diarrhea and no excessive acidity when babies are fed according to that rule.

Ass' milk is digestible and wholesome, not in spite of, but because of its low percentage of fat, and in spite of its protein being contained in larger quantity in ass' than in woman's milk.

The modern experience in infant-feeding with buttermilk seems to upset all the fine-spun theories of the laboratories. It appears to be proven by the results of Dutch peasants and many first-class European clinics that buttermilk — which, indeed, cannot be claimed to be like woman's milk, either physically or chemically— is an excellent nutriment in acute and chronic gastroenteritis of the young, in grave dyspepsias, in the chronic dyspepsias (for instance, of syphilis), and also in their healthy condition. Its percentage of sugar is only 2.82 to 3.5, of albumen 2.5 to 2.7, of fat only 0.5 to 1. Still, *the infants thrive*. The literature of the last few years, which has become quite extensive, and the names, many quite illustrious, of the sponsors of the buttermilk-feeding prove it. They merely confirm the old experience of the Dutch peasant population.

The main recommendations in the use of buttermilk are as follows: It should not be taken from milk that has been standing longer than 24 hours; it should be boiled so slowly that after 25 minutes only there are a few ebullitions; a liter should be mixed, while being so boiled, with 10 or 12 grams of farina or rice, and, finally, with 70 or 90 grams of sugar. In order to reduce the casein to the finest possible coagulations the buttermilk while being boiled should be gently whipped.

Other positive rules enforced by Teixeira de Mattos and many others are as follows: The carbohydrates must *not* be dextrinized. They must be flour, not malt. The sugar must be *cane* sugar, not milk sugar. There should be an addition of sodium chloride. The addition of fat is useless and may be dangerous.

I request you to compare some of the figures referring to butter-

milk with those of human and of ass' milk. There are proteins in woman's milk 1.7 per cent., in cow's milk 3.5, in ass' 2.3, in buttermilk 2.5 to 2.7; fat in woman's milk 3.8, in cow's milk 3.7, in ass' 1.6, in buttermilk 0.5 to 1 per cent.; sugar in woman's milk 6, in cow's milk 4, in ass' milk 6.2, in buttermilk 2.82 to 3.5 per cent. Of all these there is the greatest resemblance between ass' milk and buttermilk, both of which are vastly different from woman's milk. Why is it that both should have proven excellent nutriments for the infant? Is not all this rank heresy? Does it not conflict with the experiments and the dictates—mind, I do not say experience—of laboratories? Does it not rather confirm all the observations and teaching of Jacobi these nearly 50 years? Does it not prove that nature is not plastic, and affords ample latitude in the choice of food, provided it be pure?

The cow's milk mixture which is to be administered to infants requires sugar, which makes it more palatable and less constipating, and restores, to a certain limited extent, the approximate composition of woman's milk. The latter contains 6 or 7 per cent. of sugar, cow's milk only 3 or 4 per cent. Imagine your cow's mixture or dilution contains 50 per cent. of milk; so there is only 1½ per cent. of sugar in it. This sugar is milk sugar. Now, should milk sugar or cane sugar be added?

Breast milk plunges into the infant stomach directly unchanged and sterile; cow's milk has to wait from 1 to 24 hours before it reaches the consumer. Its milk sugar begins to be changed into lactic acid immediately after milking. This lactic acid, together with the rennet of the stomach and the acids formed out of the fat of the milk, are the final causes of curdling. If you meet with a milk that is no longer alkaline—indeed, some milks are acidulated in the udder, and many more are amphoteric, that is, neutral—the decomposition of the milk is very rapid. It is true not all the sugar contained in cow's milk sent into the stomach is changed into lactic acid. Usually this change stops when one-sixth or one-quarter of the milk sugar has been so changed. Only when an alkali is present in the stomach and neutralizes the lactic acid more of the latter is formed. Thus, indeed, the amount of lactic acid which is produced depends on the accident of an alkali being present or absent. That is why the routine use of sodic carbonate or bicarbonate may become a dangerous procedure. This fact appears to prove that a small amount of lactic acid suffices for the demands of normal digestion. That becomes still more apparent when we learn that some of the milk sugar passes through the intestinal tract undigested, Blauberg (*Studien über Säuglingsfäces,* p. 55) found the dried feces of the nursling to contain from 0.22 to 0.59 per cent. of milk sugar. This happens even to woman's milk sugar. And Escherich found that peptones which form in milk while in the intestines previous to normal absorption are destroyed by acid fermentation, and concludes that for that reason alone another carbohydrate (*i. e.*, starchy food or cane sugar) should take the place of milk sugar in order to avoid an excess of lactic acid. More-

over, Dr. Helen Baldwin has published (*Journal of Experimental Medicine,* Vol. V) investigations which prove the formation of oxalic acid as the result of intestinal fermentation. Thus, surely, it seems to be easier to give too much milk sugar than too little, and it appears that the careful measuring and weighing of milk sugar are of doubtful value, even though you know, or believe you know, that the milk sugar of the market and the milk sugar of woman's milk are identical, which they are not. All this refers to cow's milk that is obtained and utilized when still fresh. When it reaches the baby's stomach 10 or 24 hours' old, with quantities of lactic acid formed, Escherich's warning is still more urgent.

Please add to this what follows: Cow's milk keeps its casein in solution by its normal percentage of calcium phosphate. This is decomposed by the lactic acid of stale milk, or, when milk sugar is added and is changed into lactic acid, the casein is thrown out and coagulated. Now, cow's milk has three or four times as much casein as woman's milk and only half as much milk sugar. This small quantity of milk sugar allows the big mass of casein to be kept in solution. If you add the milk sugar (or its lactic acid) of our chemical infant-feeders, the casein is no longer kept in solution, and is thrown out. One of the great dangers of infant-feeding is the insoluble or curdled casein. The proper quantity of milk sugar (the hobby-horse of our professional dieticians) to go with a cow's milk mixture ought to be enough, and no more, to keep cow's milk casein in solution, but not the large percentage of milk sugar contained in woman's milk, which will prove excessive in its relation to cow's milk casein. It is only woman's casein that, though in a percentage three times smaller than that which is contained in cow's milk, is not thrown out by its larger quantity of (milk sugar born) lactic acid.

All of this proves again that the casein of the cow's milk and that of woman's milk are chemically different, and that the practice of adding the weight of milk sugar required to keep woman's casein in solution is in excess of that which is tolerated by that of the cow.

What I conclude from all this is that every cow's milk mixture contains a sufficient amount of milk sugar for the needs of digestion, and that some other sugar should be added, viz., cane sugar, which, in its chemical atoms, is identical with milk sugar, but is not changed into lactic acid. Indeed, it counteracts the rapid conversion of milk sugar into lactic acid—is rather a preserver of milk in its purity. You know that cane sugar is employed by the trades for the purpose of preserving foods. Amongst them is condensed milk, which, though reprehensible as a food when pure cow's milk can be obtained, is an indispensable makeshift in the service of the hundreds of thousands of our large cities to whom pure milk is a *terra incognita.* I do not speak, I never spoke, in its favor, but I recognize that unclean milk, fermented milk, poisoned milk is vastly inferior to good condensed milk, and I conclude that what I and you and all the rest are bound to do is to facilitate the produc-

tion and distribution of real, genuine, unpolluted cow's milk. The Baltimore movement in this direction will prove a great benefaction to rich and poor, to old and young.

Cane sugar is not changed to an acid in the intestinal canal. It is easily absorbed, and is not detrimental. It is, according to Pavy, partly inverted into grape sugar and partly absorbed directly. Grape sugar and dextrine are absorbed equally. Only in the sick the absorption of sugar is slow. Particularly in the diseases of the alimentary canal, in which there is increased fermentation in the mouth, stomach, and intestines, the ingested quantity of sugar should be diminished and diluted. The purgative effect of cane sugar—if at all appreciable—is much milder than that of milk sugar. After all, I again urge the use of cane sugar, and not of milk sugar, in the preparation of cow's milk mixtures in infant-feeding. For the same reasons a great pediatrist, Philippe Biedert, employs cane sugar in his cream mixture, which, under the name of Ramogen, has been introduced lately into the American market.

Occasionally there is an opposite opinion. A. Keller, otherwise favorably known, declares sugar to be by no means uninjurious to the newly born, and advises saccharine in its place. He has the courage of his convictions, based on I do not know what, and says "there can be no objection to saccharine." That is why he orders the first day of a baby's life "tea" with saccharine, and his reason is literally because "Jansen made experiments on newly-born calves with boiled milk which almost always resulted in hemorrhagic diarrhea." Since I read that I have warned every newly-born calf to keep out of the way of Keller and Jansen.

Altogether, the amount of sugar should not be excessive. It is absorbed in certain quantities only, never more than 1-125th of the body weight of infants. Heubner and Biedert, the great German authorities, differ in regard to the weight of milk sugar administered. The recommendations of the former are repudiated by the latter. In a very recent publication ("Das Kind," by Th. Biedert, 1906) Fritz Gernheim proposes as of equal standing grape, cane, milk and malt sugars, and adds: "If you wish to give much sugar, mix milk sugar, if you select it, with one of the others to avoid diarrhea." Now, then, I say again be satisfied with the milk sugar contained in the cow's milk you employ, and, for the rest, pin your faith on cane sugar.

Woman's milk contains less mineral parts than cow's milk (Albu and Neuberg, p. 74), but, on account of the nature of its combinations, the infant assimilates more of those contained in mother's milk. The most available one is nucleon phosphorus. Of phosphorus there is in organic combination 77 per cent. in woman's milk, with 54 per cent. nucleon phosphorus, but only 27.9 per cent. in cow's milk, with 13.4 per cent. of nucleon phosphorus. It is true that the phosphorus of both milks is absorbed equally well, but that of cow's milk is not retained and utilized. That is still worse in dyspeptic infants, who absorb less phosphorus and calcium when introduced in cow's milk.

Altogether, the salts of human milk are better utilized by the nursling than those of cow's milk. That is mainly so—besides phosphorus—in regard to calcium and magnesium, which are required by the growing structure of the infant's body. The small percentages of mineral constituents in the organism are no proof of their lack of usefulness. Indeed, small quantities of minerals are all that is required for the building up of the human structure and the preparation of excreta, but their absence is speedily felt; upon no occasion more than towards the end of the normal period of milk-feeding. For instance, the newly born contains six times more iron than is contained in the milk of either woman or cow. This excess of iron, mostly deposited in the liver, is utilized by the growing child in the course of months. When it is exhausted milk is no longer sufficient, and artificial feeding is demanded. You all know of instances of profound anemia of the nursling caused by prolonged lactation or excessive milk-feeding which were speedily cured by the partial or entire substitution of animal and vegetable food adapted to the age of the baby. It appears rational not to let the iron accumulated in the liver of the newly born be gradually drained off, but to serve a new supply in the addition of cereals, fruit, or animal food.

The large percentage of casein in cow's milk compared with that contained in human milk—without regard to their physical, chemical, and physiological differences—necessitated the dilution of cow's milk when required for infant-feeding. The material for dilution was water, the principal constituent of everything organic. Its *rôle* in the anatomy of the human body has been the subject of a thousand researches.

Fehling, Camerer, and Söldner have studied the percentage of water in the composition of the fetal and infant tissues. It is 94 in the fetus of three months; after the sixth fetal month and at birth it is 69 to 66, and in the adult only 58. More than one-half of this belongs to the muscles, 27 per cent. to the bones, and only 10 per cent. to the fat of the body. So the tissues of the newly born contain 10 per cent. more water than those of advanced years. Immediately after birth the excreting functions of the lungs, skin, and kidney, also the intestines, display a new activity. Unless a sufficient amount of water is furnished to the newly born the tissues lose their physiological equilibrium and their functions are impaired. That a baby had no new supply of water the first day or days of its life was the rule until its rights and necessities were recognized in our more thoughtful modern era. The time when the loss of 10 or 20 per cent. of the weight of a newly-born infant was considered normal is well remembered even by those of you who are quite young. Now if there be no milk, water is the least you can give. But even if the young mother *has* milk, that milk is colostrum, which contains from 3 to 5 per cent. of nitrogenous substance—more than four times the percentage contained in the milk of the second week and ever afterwards. That is why natural baby food is better digested with than without additional water.

The danger is particularly great in the milks of mothers that have been prematurely confined, for in their milk the percentage of proteids is disproportionately still higher. Thus everything is against their newly-born waifs. First, kind nature expels them before they are matured; then she supplies them providentially with indigestible food, which should be corrected by ample dilution. Do not tell me that nature knows best, and that whatever comes as a gift of her bounty is best. We are apt to mistake her for providential wisdom and goodness, and forget that her smiling face may be the gruesome veil over the buds of the spring, the roses of the summer, the shrieks as well as the laughter of our babies, and pestilences and earthquakes. The sunny sky over the Pacific shore is looking indifferently on the fragrant new buds and on the 500,000 terrified, impoverished, starving, and shivering men, women, and children. Nature is at the same time more bountiful and more unmerciful than mankind ever was. Nature's laws are ironclad. When she does her worst sympathetic and pitiful man, taught by terror, anguish and sorrow, has to work out his ethical future.

It is admitted by the very best authorities (Biedert included) that atrophy, fat, diarrhea, and other diseases demand copious dilution of the food. That is a matter of experience and good reasoning. The same experience favors dilution in healthy conditions. If there were such a thing as condensed *woman's* milk, we should readily agree upon the method of dilution.

But in artificial feeding we deal with cow's milk, whose proteids are not only denser, but are also chemically different. The dilution of cow's milk for the newly born should be from four or six to one, and for a baby of six months one to one. That is required to make milk digestible. There are more reasons, however, for a high degree of dilution. Our babies are not given enough water. Breast and the bottle, as mostly prepared, contain food, not water. When babies are hungry they cry; when they are thirsty they speak the same language. In either case they are given food, not drink. That is why babies should frequently be offered pure spring or boiled water in some shape or other, and it is easiest to add it to their food. The objection made to this plan is that it is said to lead to dilatation of the stomach. That objection has been constructed at the writing desk. I have not yet seen such a case, and the rapid muscular action of the almost vertical infant stomach endowed with good circular fibers, and the rapid absorption of fluids containing salts or sugars from it and from the longer tract of intestines, with its well-developed lymph apparatus and very vascular villi, renders gastric dilatation very improbable, probably impossible. It is true water, when pure, is not readily absorbed in or expelled by the stomach, but in the condition in which it is in the infant's stomach, viz., with salt and sugar, it is readily absorbed. You have, moreover, seen diabetics drink 5 and 10 liters of water and more daily for years, not mixed with sugar, or salt, or alcohol; but no dilatation of the stomach from that cause arises; and 300

or 500 more cubic centimeters of water given to a baby in the course of 24 hours are no danger, but they are a blessing in more than one way. The frequency of uric-acid infarction in the newly born, quite well known to Hippocrates and Galen, leading in many instances to the formation of stone in the kidney, which is quite frequent; to pyelitis, which is not infrequent, or to nephritis, which is *very* frequent, is best corrected by flushing the kidneys from an early time. These dozens of years during which I and my pupils and others have insisted upon copious dilution of the food of the newly born and young infant we have seen fewer colics from kidney-stone and fewer cases of kidney inflammation than formerly.

What I have said of the coagulability of cow's casein and its general difference from the casein of human milk, of the dissimilar character of the fat contained in the two milks, of the dangers to digestion resulting from the excess of lactic acid in the intestine, and from the advice given by Escherich and others to replace milk sugar by some other carbohydrate, makes the substitution of a diluent more efficient than mere water advisable. That diluent should render an additional service, that is, it should be of such a nature as to prevent the coagulation in hard lumps of the casein of the cow's milk when introduced into the baby's stomach. Normally, the coagulum of mother's milk is soft and flaky; that of cow's milk hard and firm. Means should be found to avoid the latter occurrence, but such means as will be agreeable to every infant stomach. One of the preparations of cow's milk which I was taught by Dr. I. Rudisch—at that time an assistant of mine and for a generation a highly-esteemed colleague—is as follows: Take 1 part of dilute hydrochloric acid (one-half teaspoonful), mix with 250 parts of water (one pint), and add thereto 500 parts of raw milk (one quart). Shake and bring to a boil. That gives you a palatable mixture, which coagulates milk in the stomach in fine flakes and is very digestible, and is invaluable in many cases of dyspepsia both of the young and the old invalid. But as a routine food of the healthy infant I cannot recommend it.

A very famous man, Emil von Behring, has not added to his fame by proposing the mixing of cow's milk with formalin to make it the universal infant milk. He was moved to give that advice by his opinion that all the tuberculosis of advanced years was really the result of tuberculous milk given to the babies. The theory is incorrect; the mixing of milk with a rank poison is an abomination.

Many of the teachings of modern pediatry have come whence you would not expect them. Clinicians of high repute and village practitioners knew perfectly well, even before Van Swieten, that every newly born bears small quantities of starch with impunity—aye, with advantage; that a large quantity of it, however, or exclusive flour-feeding, is injurious on account of its insufficient nutritive material or its fermentation, or both. Indeed, Frerichs taught us so 60 years ago (Wagner, Handwörterbuch, Vol. III, p. 803). The only result of dyspepsia which does not follow the ingestion

of carbohydrates is acetone and oxybutyric acid. They are formed by the decomposition of fat in the overfed or underfed organism, not by flours. It is important to appreciate that fact. All of this is quite well understood by the practitioner, but it appears not so by a large number of physiological chemists who construe the physiology of digestion in the test tubes of the laboratory. Even clinicians have been very slow in accommodating themselves to the lessons of their own experience. Fifty years ago I knew no physiological chemistry, in spite of Lehmann. It was my experience that taught me the digestibility of small quantities of cereals. I was pushed aside until 35 years ago Schiffer, Korowin, and Zweifel* established beyond doubt, with the aid of simple experimentation, the diastatic function of the salivary glands even in the newly born. Was this teaching accepted and utilized in the practice of medicine? Oh, no! It was much simpler to take no notice of it. Then, some 25 years later, a great pediatrist† came to the conclusion that the gut of the baby when diseased did better with flour than without it. Flour of rice and of oats was extolled for curative purposes, but not yet for nutrition. Only gradually cereal decoctions were added to cow's milk in place of water, and lo and behold, we are at present in a new epoch of teaching where every tyro in pediatry discovers all by and through and for himself the new gospel of the cereals!

Starch shares some of the properties of all carbohydrates. As early as 1881 Voit (*Handbuch d. Physiologie,* by Hermann, Vol. VI, I, 139) proved that during feeding with carbohydrates the consumption of albuminoids is diminished and becomes in part unnecessary. Increase of muscle goes, to a certain extent, hand in hand with the *diminution* in the food of albumen and with the *increase* of carbohydrates. That agrees perfectly with the experience Gregor had lately (*Arch. f. Kinderh.,* 1900), when he found

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*Schiffer (Ueb. d. saccharificirenden Eigenschaften des kindl. Speichels, Dubois u. Reichert's Arch. iv, 1872, p. 469, and Berl. Klin. Woch., 1872, No. 29) proved the transformation of starch into sugar within from five to ten minutes in the mouth of babies, of whom one was two hours, one 16 days, and one two months old. Zweifel (Unters. ueb. d. Verdauungsapparat der Neugebornen, Berlin, 1874) demonstrated the diastatic effect of the parotid of an infant of seven days within four minutes; even in the case of one that died on the eighteenth day of its life of gastroenteritis there was some little diastatic action in the parotid infusion. Korowin, in his last paper on the subject (Arch. Kinderheilk., 1875, p. 381), says verbally: "There is a distinct diastatic influence of the oral secretion from the first minute. It increases with every month. Infusions of the parotid prepared at different periods after death will transform starch. Infusions of the pancreas of infants that died in the first three weeks had no diastatic action; it begins with the fourth week, but remains feeble to the end of the first year."

†Heubner (Berl. Klin. Woch., 1895, No. 10) was converted to believe in the good there is in flour-feeding by the observation that infants sick with gastrointestinal disorders bear and require flour, and that nurslings before the fourth month dextrinize and absorb it. He prefers simple flours, mainly oats and rice, to any compound. To him and to Carstens (Verh. Ges. Kind. Luebeck, 1895) a good deal of change in the public medical opinion in regard to the estimation in which flours are held is due. For, indeed, my labors of 1876 and long before (Infant Diet, 1872 and 1875, rules and regulations of the New York Board of Health, and papers on the same subject covering the last 40 years) have been forgotten and seldom enjoy the honor of being quoted in our fast-living time. At present it begins to be considered fair to accept that milk becomes more digestible by the addition of flour decoctions, and that starch is not only changed in the upper, but also in the lower intestine, even of moribund infants, an occurrence which need not even depend on the presence of microbes (Miura, Zeitsch. f. Biol., N. F., xiv, p. 266). I suggest that whatever is possible in the sick and moribund is not difficult in the well.

that his infants when nourished on milk containing sufficient quantities of starch were more active and less rickety than the average. My own observations, extending over 50 years, have been made on tens of thousands of infants in whom *not exactly large* amounts of starch, but cereals containing a *small percentage* of it, were proven to add health and strength in preference to anything else when combined with milk, and with sugar and table salt in the average cases, and in cases of incipient rhachitis with animal food. In place of simple cereal decoctions Arthur Keller proposed malt soup as infant food. But even he admits that dextrinized flour, that is, malt, is not the best or only carbohydrate to be employed. Though using it in preference, he admits that safety lies mainly in the admixture of wheat flour to his malt soup. The latter, when not so mixed, gives rise to diarrhea. He states distinctly that the beneficent effect in doubtful cases must be due to the starch of the wheat, inasmuch as all the other constituents of the wheat are contained in the malt also. Thus he, too, attributes the principal effect to the starch.

This leads us to the consideration of starch from another point of view. Not only does it dispense with the feeding of albumen, the excess of which leads so easily to intestinal putrefaction, permitting the reduction of the quantity of albuminates in infant food; not only is it (together with other carbohydrates) the principal source of muscular force in general and of the heart in particular, mainly in acute diseases (and probably better than alcohol), but it acts as a direct intestinal antiseptic. I need not prove that, as it is a generally accepted fact. Old men in the profession —if there be any old men in the profession, which I sometimes deny—may remember that I always recommended cereals, mainly oatmeal or barley, the raw, and not the dextrinized material, in such a proportion that about a tablespoonful of the powder was boiled with a little table salt in a quart of water one-half hour, more or less, down to a pint, this decoction to be used in certain proportions with the sugared and salted cow's milk, the whole to be boiled or sterilized before using. I selected these particular cereals for the reason that they included plenty of iron and other salts, and vegetable albumen, and as *little* starch as any cereals or farinacea are known to contain.

My learned and ingenious friend, Woods Hutchinson, has lately (*McClure's*, April, 1906) come out with a diatribe against cereals, in which he admits the Scotch have been living these many hundred years. He asserts that the most convincing proof the Scotch have given of their greatness has been to live on oatmeal at all. The secret of their wonderful success, both mental and physical, lies in the fact, he says, that any nation trained to survive a diet of oatmeal and the shorter catechism could survive anything and flourish anywhere. According to the same writer, "oatmeal has some value as a food, but little to compare with its capacity as a stirrer-up of acid fermentations and intestinal putrefaction." All this, and many other things which I cannot mention here, appeal

to you and me as more stirringly aggressive than empirically—and even chemically—correct, not to mention the irrationality of attributing to sensible and mild decoctions of cereals used for the dilution of cow's milk for the feeding of infants the horrors of thick, pasty messes. As an offset I beg to quote another old friend, much older than Woods Hutchinson, even older than myself. His name is Homer. Him I play off against the other. In the Odyssey, XX, 108, he mentions the fabrication of flour of wheat and barley, and calls it "the marrow of men." I add: of those who will be the future men and women. Permit one more Homeric quotation; you have become accustomed to quotations by that greater and philosophical and poetic physician, William Osler. Plato (Dial. III) reports "the hero Eurypylos, after having been wounded, drinks a posset of Pramnian wine well besprinkled with barley meal and grated cheese."

After all, this reiteration of the same mistakes reminds me of what I have heard of their resemblance to nails—the more you hammer them the faster they stick.

In the most recent work (whose pages are scarcely dry) you find again the warning not to use thin or thick decoctions of barley, rice, oats, or their flours in the feeding of nurslings under four months of age, because they digest starch more or less badly. Let us say "less badly."

The digestibility of cereals by the infant, though the pancreas may not have obtained its complete function, is enhanced by a peculiar condition of the gut of the baby. It is relatively longer and has more absorbent villi of the mucous membrane. Indeed, the lymph vessels all over the infant system are more numerous and are larger.

Barley and oatmeal have an almost equal chemical composition; the latter has a greater tendency to loosen the bowels. That is why, when there is a tendency to diarrhea, the barley is preferable; when constipation, oatmeal. The whole barleycorn, ground for the purpose, should be used for small children, because the proteid is contained near the husk, moreover on account of its percentage of iron.

Artificial feeding requires the addition of table salt (sodium chloride). According to Voit's old teaching, it improves metabolism by increasing the secretion of the kidneys. Of greater importance, however, is the fact that the chloride of sodium of the food is the source of the formation of hydrochloric acid of the gastric juice. It surely originates in the sodium chloride of the blood, for even when no food has been taken there is gastric juice in the stomach. The locality of its formation, however, is not in the blood itself, nor even in the glandular cells, but it is caused, according to Köppe, in the wall of the stomach through osmosis between the gastric contents and the blood.

In vegetables, cereals included, potassium predominates. Potassium is found in the blood as a phosphate, sodium as a chloride. They interchange so as to form sodium phosphate and potassium

chloride. Both are quietly eliminated through the kidneys. The potassium being present in overwhelming quantities, too much sodium chloride is eliminated, and it must be replaced by feeding it. The Japanese require very little salt, because they eat rice, which contains 40 times less potassium than, for instance, potatoes. Even the ancients knew the requirements of food, though without chemistry. In their sacrifices to the gods the Greeks and Romans added salt to vegetables, but none to animals.

The nutritive value of a food is generally estimated by its calories. A calory is called the amount of heat required to add 1° C. to a quart of water. A gram of fat furnishes 9.2 calories; the carbohydrates, that is, starch and sugar, 4; the albuminates 4.2, woman's milk 6.5, and cow's milk 6.72. During the first four months a growing baby requires food enough to furnish daily 80 calories for every two pounds—a kilogram—of body weight; a 12 or 15-pound baby from 500 to 700 calories, and besides from five to seven ounces (150 or 200 grams) of fluid—that is, from one to one and one-half quarts of fluid. This is full feeding, in most cases overfeeding.

Calories have played an important part in the pediatric literature of the last few years. I wonder how long that will last! Seventy years ago Justus von Liebig taught the differentiation between the food that produced warmth—calor—and that which added to the substance of the body. At that time it was the carbohydrates alone that were credited with being calorific and fat furnishers, and the proteids supplied the rest. If calories at the present time rule our terminology, they are—if nutrition in general is to be denominated by that word—a misnomer at least.

In regard to the quantity of food, we begin to appreciate the fact that our babies, like ourselves, eat too much. We need not go the whole length of Chittenden's practice, but still be impressed with the truth of his teaching—that the minimum demand of food should be ascertained, particularly for those babies who are limited to the less digestible cow's casein. Besides, the intervals between the meals should not be too short. That of two hours is too short for even the smallest baby. Twenty-five years ago I emptied a great many infant stomachs, and never found one quite empty two hours after a meal even when it consisted of mother's milk. Cow's milk should have at least half an hour more even in the first two months.

Another question is raised in regard to the strength—the gradual increase of solids in an infant food. It has been customary to teach that the solids should increase from time to time. Amongst those erudite and positive teachers who are of an opposite opinion is Arthur V. Meigs. Still, he admits that, after all, the final judgment rests with clinicians—that means the practical physicians of a community and the large infant institutions. My custom has been to gradually increase the strength of the milk mixture employed in infant-feeding. The newly born is given 20 or 25 per cent. of milk in a thin barley or oatmeal water; the infant of six

months equal parts. In the interval a gradual increase of milk takes place. Whenever there is an intestinal disorder—vomiting or passing of curd—the milk is temporarily diminished. Observation and common sense are both more instructive and beneficial than mathematical rules. The baby is no crystal, but an organism.

If raw milk could always be had unadulterated, fresh, and untainted, and as often as it was wanted, it would require no boiling. Heating might even be contraindicated unless great care be taken, for high temperatures, beyond destroying dangerous microbes, may injure those required for normal digestion.

But moderate boiling or sterilization is by no means always a positive protection. Aerobic bacteria, the hay or potato bacilli, with their resistant spores, require sterilization of many hours before they are destroyed.

Within a few years streptococci have become of interest in their connection with milk. Beck (*D. Viertel j. f. off. Ges.,* 1900) found them in 62 per cent. of all the cow's milks examined by him. As they were pathogenous for rabbits and guinea-pigs, he presumed them to be the cause of infant enteritis. Petruschky (1904), Escherich, and Bruning share that opinion. Finally, Bergey, in a paper on the source and nature of bacteria in milk (*Commonwealth of Pennsylvania, Department of Agriculture, Bulletin No.* 125, 1904) studied the parallelism of the percentage of leucocytes and of streptococci contained in milk. His findings have been confirmed by Trommsdorff and Rullmann of Munich (*M. med. Woch.,* March 20, 1906). They are as follows: Wherever there are in a milk many leucocytes it is also replete with streptococci. Streptococci means pus. If the leucocytes of a milk are present in 1 p. m., it is suspicious of mastitis; if there be 2 p. m., there can be no doubt in regard to the presence of an inflammation of the udder. Bergey proves that it is not caused by the process of lactation, but by extraneous infection, mostly by the hands of the milkmen. Two conclusions are inevitable and correspond with what you have been told weeks ago: First, that the greatest cleanliness in the stables and about the dairies is indispensable; second, that milk in its raw state, unboiled, is frequently a dangerous article.

Now, sterilization prolonged until it kills streptococci and bacilli first kills the milk as a nutriment. There is no more frequent cause of infantile scurvy than this prolonged sterilization, of which mothers and nurses are so proud.

That is why the lowest temperature which will destroy the usual bacteria should be preferred. The lower the temperature the more easily will the integrity and the taste of the milk be preserved. Theobald Smith (*Journal of Experimental Medicine,* 1899) found that in distilled water, in physiological solution of sodium chloride, in beef broth, or in milk, when heated to 60° C. (140° F.), tubercle bacilli die mostly in from 5 to 10—all of them in from 15 to 20—minutes. The membrane, however, which is formed on milk at 60°, keeps tubercle bacilli alive even after 60 minutes. That is why its formation should be prevented (or it should be removed).

On the other hand, good observers found cholera, typhoid, and tubercle bacilli in sterilized milk after one or more months. Particularly is that so when they are surrounded by fat. Unsterilized butter would preserve them longer than unsterilized milk. Thus butter and rich milk would retain their infecting qualities longer than average milk with a moderate percentage of fat. Beware of fat milk (as also of overfat children—unless they are your own).

But, after all, what you have been advised in former lectures remains true in the large majority of cases. Pasteurization at 150° F., short boiling, or short sterilization will mostly protect against the microbes of tuberculosis, diphtheria, cholera, and typhoid fever. It is worth while, however, to remember that you can never be too positive as to the character of the milk. Even breast milk and cow's milk may be tainted with dangerous microbes before they leave the maternal body. They may remain nameless here, for medical men *cannot* be frightened by jaw-breaking terms, and you *must* not. But there is one thing that should be remembered. There is no poisonous microbe equally virulent under all circumstances. For instance, your throat and nose may be covered with diphtheria or tubercle bacilli or the pneumonia microbe, but as long as the mucous membrane is healthy you have nothing to fear. Only when it becomes sore and sensitive and denuded of its epithelial surface it admits the danger. Your babies are in the same condition in regard to the dangers possibly lurking in milk. It is not the poisonous milk alone that renders them sick. Microbes pass a healthy stomach and a healthy intestine without harm. Tetterhofer swallowed cholera cultures to disprove the microbe theory and survived. But when there is a previous catarrh from indigestion after a sudden change of temperature the virulence of the bacteria will become evident. Babies taken from a hot railroad car to the deck of a lake steamer, from a warm bed to a drafty room, doors and windows open at the same time, or left exposed in wet diapers will develop a catarrh which will prepare the intestinal or respiratory tract for the admission of the microbic life destroyers. There is no more efficacious way in which to get rid of one's healthy baby than by reckless, unceasing summer traveling. There is such a thing as catching cold as a cause of disease. It is enthusiasts or fanatics only that believe in nothing but bacteria.

The other thing to be remembered is what you have been taught this winter and what you have promoted in your efforts to obtain pure milk. You know it all. Proper food and stabling, and clean skins of cows and men, of clean pails and bottles and nipples—there is the main part of the salvation of the bottle-fed baby. "*Ceteram tenseo,*" in the words of old Cato. *The own mother belongs to the baby and the baby to the own mother.*

MARYLAND MEDICAL JOURNAL.

JOHN S. FULTON, M.D., *Editor.*

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BALTIMORE, JUNE, 1906

THE MILK EXHIBITION.

THE Milk Exhibition at McCoy Hall, from May 7 to 14, gave the medical profession of Maryland a second chance to enlighten public opinion on a very important hygienic problem. Their first opportunity to demonstrate this particular method of informing the people occurred in 1904, when the Tuberculosis Commission presented its great subject in a similar way. Since that time the exhibition idea has been generally accepted as a new and powerful agency in the campaign against tuberculosis, but it was reserved for Maryland to demonstrate the more general utility of the method.

The Milk Exhibition was interesting on many accounts. The very earliest announcements, in January, said that the investigation would cover the hygienic, economic, dietetic, and technical relations of milk, but it is doubtful if the projectors knew at that time what a variety of illustrative objects could be collected under each of these four general heads. Considered merely from the museum standpoint the Exhibition was interesting, and it is quite probable that the collection was dispersed before those who assembled it became well acquainted with its contents. If such a collection could be permanently installed here for the use only of special students, its educational value would amply repay the cost of maintenance. Its influence is not to be measured, however, by its duration. The attendance was good throughout the six days. It was widely discussed, and undoubtedly brought the sanitary relations of milk into prominence at a most appropriate season. Its influence on the public mind is in part indicated by the fact that one lay visitor was moved to propose the establishment of a model dairy in one of the parks and to offer a substantial contribution to a fund for that purpose. Another offered money to pay for an active campaign of popular education in the neighborhoods where infant mortality is heaviest. It is moreover, significant that the cost of the Exhibition was met by private subscription. But the most impressive aspect of the Exhibition was to be seen in those who did its routine work. Two or three public officials learned enough about milk to outweigh the cost of the Exhibition. The demonstrations in the bacteriology and pathology of milk, the demonstrations in chemistry, in the model nursery, in the milk dispensary, in the demonstration kitchen were severally worth the price. The show would have been worth all it

cost if it had done no more than give the group of people who acted as demonstrators a week of wholesome and agreeable exercise in civic endeavor.

There was something to be learned from those who came from distant points to see the Exhibition. These did not travel for the sake of contributing to our movement, but for the sake of sharing in our study of the subject. Among them were milk inspectors from three large cities farther north. If these visitors could have been appropriately labelled and shown as illustrative objects, it might have occurred to Marylanders that Maryland cannot make a similar exhibit. The pictures, apparatus, printed matter, models, and other inanimate things contributed by New York, Boston, and Philadelphia would have seemed far less impressive if attention could have been directed to the people who do the actual work of milk inspection for the three cities named. A glance would have conveyed the information that Maryland has not, and in the immediate future cannot have, any such functionaries. This lesson, somewhat humiliating, should be laid to heart.

Two other milk exhibitions, consisting in great part of the materials collected here, will be held elsewhere in the next three weeks—one in Boston and the other in St. Paul. When the collection was in process of distribution a representative of the St. Paul exhibit remarked, "I have not seen anything here to show what Maryland is doing in the supervision of market milk." The answer was, "Maryland has very little, indeed, to show for herself. That is what justifies the Maryland Milk Exhibition."

THE MILK EPIDEMIC IN WOODBERRY.

While the Milk Exhibition was yet in progress a typhoid epidemic, traceable to milk, began to excite popular interest. Fivescore cases of typhoid, resulting in five or six deaths, sent a lively spasm of municipal virtue over the town and several city departments were roughly shaken up. Except for its dramatic intensity, the epidemic is of little consequence compared with the annual epidemic of typhoid fever to which the citizens are accustomed, and the occurrence would seem insignificant if the people would contemplate that other epidemic, now preparing to slay in the next 12 weeks more citizens than have been attacked by typhoid in the past 12 weeks. This impending epidemic will carry off the very young, who never will be missed, and the most impassioned preaching against the avoidable sacrifice will hardly rouse the people to a drowsy protest.

The history of the milk epidemic, so far as it is known, began in March, when a case appeared at the Stevens Dairy in that part of the city known as Woodberry. Its epidemic chapter opened with this case, which became known to the city Health Department at about the middle of April, when the epidemic was in full swing and the initial case was fully convalescent. In recording this case the attending physician stated that his diagnosis was based on the epidemic, and not on his clinical observations of the particular case. The law, unfortunately, does not require a physician to report to the health authorities until his diagnostic sense is fully satisfied. Apparently he may withhold public information until epidemic manifestations enable him to define the nature of an infection in precise terms, though in his pri-

vate relations he is able to give warning of infectiousness without waiting to ascertain the minutiae of the matter. Fire departments ought to conform to this principle. It is most unscientific to turn in an alarm of mere fire.

The investigation of this epidemic led naturally to the extra-urban sources of the Stevens milk supply. The conditions revealed in this investigation are not unfamiliar, though an epidemic was required to develop their significance. One of the farms was found in a condition which made the production of safe milk impossible. The water used to cool the milk was piped from a small stream arising in a poultry-yard on an adjoining farm, serving as the immediate depositary of human excrement and delivering unmistakable sewerage to the dairy farm. No clear history of illness could be obtained at either of these farms, though one of the last cases in the epidemic occurred in a young woman who lived on the farm, but spent her Saturdays and Sundays in Woodberry at the house of a relative who was one of those attacked. The epidemic will probably conclude without the discovery of any stronger probability than that the epidemic arose from the unreported case which occurred in March in the milk dealer's family.

THE CITY'S WATER SUPPLY.

THE typhoid-fever epidemic started a lively campaign of cleaning up and brought the unsanitary conditions of the "Annex" into unusual prominence. Inquiry about the city's water supply became more active than it has been for several years. The official statements on this subject were confusing. One city department said that the milk supply is safe, but advised that drinking water should be boiled. Another city department repeated its annual statement, that the public water supply is good. The epidemic of typhoid which is passing is certainly not chargeable to the water supply, but is certainly chargeable to milk. Eighteen hundred other cases of typhoid will be required to complete the history of 1906, and these will come stealthily and at intervals of time and space contrasting strongly with the explosive character of milk-borne typhoid. Of these 1800 cases, some will receive their infection outside of the city. The attack-rate among those who spend the whole summer outside of Baltimore will, in fact, be double the attack-rate of those who spend the whole summer within the city; nevertheless, those who drink no other than city water throughout the summer will swallow every day an appreciable amount of sewage, thousands will swallow the typhoid bacillus, and more than a thousand will receive effective doses to the peril of their lives. Is it merely idle or is it also ignorant to proclaim that typhoid bacillus is not found in the city water? When the colon bacillus is always present in the water and the fever never absent from the city the case against the water supply admits of no rational doubt. The annual epidemic will come and go. We have decided that we cannot at present abate the water tax of death, having other debts more pressing, but we need not deceive ourselves about the toll that is taken nor about the means employed to exact the ghastly tribute. The city water supply is bad. The morning tub is usually better than no bath, but it is never satisfactory when the appearance and the odor of the water remind one of the chemist's testimony that city water is free from color and odor.

Medical Items.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

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Committee for Fund for Relief of Widows and Orphans of Deceased Members.—Drs. Eugene F. Cordell, S. A. Nichols, D. Webster Cathell, J. I. France, J. F. Somers.

Auxiliary Congressional and Legislative Committee of the American Medical Association.—Dr. William Caspari.

Committee on Midwifery Law. — Drs. Guy Steele, H. Bratton, Wilmer Brinton, J. W. Williams, George W. Dobbin, L. Gillis Owings.

Committee on Medical Education.—Drs. W. H. Howell, St. C. Spruill, D. Streett, C. F. Bevan.

Committee on Dispensary Abuse.—Drs. W. S. Thayer, Geo. L. Wilkins, W. T. Riley, S. K. Merrick, H. W. Kennard.

Committee to Confer With Lay Press.—Drs. R. B. Warfield, C. W. Mitchell, G. Lane Taneyhill, Jr., Frank D. Gavin, J. J. Carroll.

Committee to Confer With State Board of Health.—Drs. James Bosley, G. H. Hocking, W. R. Eareckson, J. H. Billingslea, John J. Jamar.

Delegates to the American Medical Association.—Drs. Randolph Winslow, G. Lane Taneyhill; alternates, Horace M. Simmons, Brice W. Goldsborough.

Delegates to the North Carolina Medical Association—Drs. T. A. Ashby, St. C. Spruill.

Delegates to the Pennsylvania State Medical Association—Drs. A. F. Van Bibber, W. Preston Miller.

Delegates to the Delaware State Medical Association—Drs. S. G. Fisher, J. E. Graham.

Delegates to the West Virginia State Medical Association — Drs. E. B. Claybrook, H. W. McComas.

Delegates to the Virginia State Medical Association—Drs. T. H. Brayshaw, T. C. Routson.

Dorchester County Medical Society.

A very pleasant and instructive meeting of the Dorchester County Medical Society was held at Cambridge, Md., Tuesday, May 8.

Dr. John C. Travers of Cambridge and Dr. E. A. P. Jones of Crapp were elected to membership.

On motion of Dr. B. W. Goldsborough a program committee was appointed.

Dr. George B. Scholl of Baltimore read a paper on "The Practical Application of Clinical Methods in Diagnosis."

Baltimore County Medical Society.

At the annual meeting of the Baltimore County Medical Society, held on May 17 at the

Medical and Chirurgical Faculty Building, the following officers were elected:

President—Dr. J. H. Jarrett.

Vice-President—Dr. W. L. Smith.

Corresponding Secretary—Dr. R. C. Massenberg.

Recording Secretary—Dr. N. H. D. Cox.

Treasurer—Dr. B. Whitely.

The retiring president, Dr. G. H. Hocking, delivered the annual address and entertained the members at luncheon after the meeting.

Worcester County Medical Society.

The Worcester County Medical Society met at Snow Hill on the 22d of May. The officers of the society have done effective work in increasing their membership. There are only three or four physicians in the county who are not members of the local organization.

Dr. Hiram Woods, president of the Faculty, was a guest of the society. He addressed the members briefly upon the desirability of more cordial relations between the public and local press and the county organization. He also spoke of the advantages to be derived from the appointment of members to report regularly on topics of scientific interest, and reviewed the advantages offered by the courses of instruction outlined in the March issue of the *Councillors' Bulletin.*

At the business meeting the society considered the recent move of some of the insurance companies in reducing fees for medical examinations. The members decided to resist this reduction and to stand by each other in maintaining their rights.

Charles County Medical Society.

On April 3 the Charles County Medical Society was organized with 10 members, the following being elected to office:

President—Dr. John T. Digges.

Secretary-Treasurer—Dr. Thos. S. Owens.

Tuesday, May 22, a second meeting was held to perfect their organization at the La Plata Hotel, and a vice-president and board of censors were elected. It was decided to hold meetings in May, August, and October of each year, the May and October meetings to be held during the sessions of court.

Dr. Herbert Harlan of the Baltimore City Medical Society gave an address on the advantages, both scientific and social, resulting from county medical-society meetings, and cited instances of effective work accomplished by such societies.

The August meeting will be held at Chapel Point, the scientific session being followed by a fish dinner.

The Somerset county epidemic of smallpox is over. There were in all 56 cases at Crisfield, Lawsonia and Marion. No deaths occurred.

A preliminary examination of applicants for appointment in the medical corps of the army will be held at various military posts throughout the United States on July 31, 1906. Full information in regard thereto may be obtained from the surgeon-general of the army, and applications must be filed prior to June 30. It may be well to add that 30 years is the prescribed maximum age, and persons whose age exceeds that limit are not eligible for examination.

Dr. D. H. Smith of Woodberry was arrested on May 24 on a warrant sworn out by the State Board of Health and was held by Justice White of the Northern Police District of Baltimore city to await the action of the grand jury on a charge of neglect to report a case of typhoid fever at the Stevens dairy. A similar warrant was sworn out for the failure to report another case of typhoid fever at the Palhoun dairy farm in Baltimore county. It is said that six other cases are in preparation against physicians neglecting to report.

Among the demonstrations at the Milk Exhibition the more notable were the following: Dr. Samuel Amberg on Friday evening gave a demonstration of the chemistry of milk. This was really a series of brief demonstrations given successively by Drs. Amberg, Fitzhugh, Waite, Urquhart and Thomas. On Tuesday afternoon, Dr. J. H. Mason Knox; on Wednesday, Dr. C. O'Donovan; on Thursday, Dr. C. W. Mitchell; on Friday, Dr. John Ruhräh; on Saturday, Dr. W. E. Magruder, and on Monday, Dr. José L. Hirsh conducted demonstrations in the milk dispensary and model nursery. Dr. Joseph Gichner demonstrated his fine collection of cheeses every afternoon. Drs. Ford, Stokes, Hirsh, Hirshberg, and Rohrer gave demonstrations in the pathology and bacteriology of milk. Dr. S. S. Buckley demonstrated the use of Von Behring's bovo-vaccine on Monday afternoon. Miss Virginia Purmort of the Drexel Institute gave a demonstration in the culinary uses of milk each afternoon from 4 to 5.30.

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THE PRESENT ASPECTS AND NEEDS OF THE MILK SUPPLY OF BALTIMORE.

By C. Hampson Jones, M.D.,
Assistant Commissioner of Health, Baltimore.

I APPROACH my subject with hesitation on account of the difficulty of presenting it in colors that will give you a correct idea of the condition of our milk. They should not be too vivid, thereby producing panicky fears, nor too subdued, thereby giving a false sense of security, but of just sufficient brightness to attract the eye and to produce a well-defined impression of the truth.

This lecture is not for the purpose of convincing you of the vileness of milk, for it is not vile, but to elucidate some features of the marketing of milk which, if improved, will lessen or entirely remove unseen dangers that lurk in it.

The establishment of the chemical and bacteriological laboratories of the Health Department in 1896 and the appointment of food inspectors, who were empowered to arrest offenders and to destroy food below legal requirements, inaugurated a change in our milk supply which has resulted in a permanent improvement, as must be apparent to everyone who can remember the conditions in 1895. It is true that our inspectors have spilt 557 gallons of milk during the last three months because it was below a specific gravity of 1029, and that in a short time we will spill milk because it has been preserved with formaldehyde, yet it also remains true that less of these spillings are required than in former years.

Our milk is received from three sources—first, from cows in stables within the city limits; second, from dairies just beyond the city's boundaries and brought in by wagons, and third, from the farm districts that depend upon the railroads for transportation.

About two months ago the Department requested Marshal Farnan of the Police Department to order a report to be made by patrolmen of the cow stables on their respective beats. By this report we find that there are in all 274 cow stables distributed in

the eight police districts as follows: Northern, 90; Northwestern, 53; Western, 1; Southwestern, 63; Northeastern, 56; Southern, 11; Eastern, none; Central, none. These stables shelter 1251 cows. There are 188 stables where one or two cows are kept for private use only. There are left, therefore, 86 stables, each containing more than two cows whose milk is sold. There are of these 30 stables containing between 2 and 5 cows; 26 stables, 5 to 10 cows; 10 stables, 10 to 15 cows; 8 stables, 15 to 20 cows; 3 stables, 20 to 25 cows; 2 stables, 25 to 30 cows; 7 stables, more than 30 cows each, making in all 1251 cows, yielding about 1886 gallons of milk daily.

In 1902 an ordinance was introduced by Mr. Wm. A. Eisenbrandt, who was a member of the second branch of our city council, which caused the number of cow stables within the city limits to be reduced from 398 to the present number—274—a reduction of 124. This reduction is noticed especially in the number of stables producing market milk. These are almost completely banished from the built-up sections of the city. This ordinance will still further reduce the number of such stables as the city is built up, because the owners will not be able to obtain the required one-quarter acre of land contiguous to the stable.

A visit to these stables, I think, would convince you that the proprietors are trying to be law-abiding citizens, but that such trying has been in most instances of the spasmodic variety, the spasm manifesting itself just before or during the inspectors' visits. But not all are of this type, as you will see by the photographs of one that is almost in the center of the city. The pictures will surprise you, because the cows do not show the marked physical defects that continued confinement is expected to produce on animals confined continuously within the stable for weeks and months without exercise. This apparent well-being is the result of frequent buying and selling of cows. These city producers supply 1200 to 1500 gallons of milk by distribution direct to consumers or small stores.

The abolition of a number of such stables within our city limits, however, was not an unmixed blessing, because a few of them were simply transferred to the outlying district, where they have developed into a greater menace to health than when they were within the jurisdiction of the Health Department. It is very unfortunate that we have within a mile or two beyond the city limits a number of cow stables that are simply abominable, not only on account of their filthy condition, but also because their closeness to the city permits the milk to be brought twice daily into the city without necessitating that care to keep the milk cool and clean which a producer at a greater distance knows is necessary in order to prevent the milk from souring. Such milk is apt to contain not only those organisms that produce souring, but also those that produce more serious changes in the milk if kept long by the consumer.

Words cannot possibly convey an idea of the awful condition of some of the stables in Highlandtown and vicinity. In one stable I remained about 30 minutes, but the odor of that stable remained

in my clothing for 48 hours. Confined in this place were 68 cows. When the stable door was closed there was not enough light to make all of the cows clearly visible. There was no ventilation except that which the stable-owners could not prevent. Vapors and foul odors arose from the hot, wet bodies and discharged wastes from the animals. A peculiar, penetrating acid odor was added by swill and other foodstuffs; the footway, part of the stalls and the bodies of cows were wet with urine, and the cows' hind-quarters caked with dried manure (an accumulation of days and weeks). The poor beasts are kept chained up in such a place for weeks and months without fresh air, sunlight or exercise. The width of the stalls is barely enough to let the cows lie down, and the stalls are too short to keep the tails of the cows from lying in filth in the trenches that are intended to act as drains. In perfect keeping with such conditions we find the "milkmaids." Their clothing is filthy, and if they ever washed their faces and hands it must have been done unintentionally. Filthiness was especially evidenced by the condition of their hands, which were shaded by layers of manure that differed one from the other in age only.

The framework of the stable was festooned with cobwebs; whitewash was apparently unknown, and filth covered the sides and rafters of the stable. The milkmaids sleep in a loft above, which is heated by the body-heat of the cows. The 40-quart cans were in bad condition, and were kept in a small, dirty, dark shed just outside the stable. They were uncovered and filled with milk. This stable was the worst of all. There were others that presented conditions almost as vile. On March 19, 1906, the bacteriological laboratory reported an examination made of the milk produced at this place. One cubic centimeter of the specimen taken from the milk bucket showed 7,920,000 bacteria. These stables are not kept by Americans nor by such foreign-born people as the Germans. In beautiful contrast to the above conditions—in the same neighborhood, surrounded by the same political and social conditions, with the same price for milk—is a stable kept by a German. This place is so well lighted that we did not use the flashlight to obtain a photograph; it was clean, whitewashed, and well ventilated; the floor was of cement and well drained; the man was clean, his helpers (who were his children) were clean, and they apparently took great pride in their cows and stable. The stable was not perfect, but it was a splendid example for others to follows, and proved beyond all question that the pleadings of others that poverty and the price of milk prevent them adopting our suggestions for improvement are nonsensical. A specimen of milk from the milk bucket showed less than 10,000 bacteria per cubic centimeter. This man was not alone in the cleanliness of his cows and stable, and it appeals to me that such men, who of their own accord have endeavored to give our citizens milk that is not offensive to decency and health, should be helped in their work by giving them the approval of the Health Department.

The milk from these nearby sources amounts to 2000 gallons

daily. It is distributed directly to consumers by wagons, or indirectly through stores, or still more indirectly through wholesalers, who supply retailers who own wagons or stores.

We must now consider for a moment the milk producers in the outlying districts—districts in which the farmers must depend on railroads for transportation of milk. There are about 326 shippers of milk by railroad, and it is estimated that they send to the city 24,525 gallons of milk daily. This milk is received at Camden, Fulton, Hillen, Calvert, President Street, and North Avenue stations. In these country districts—the real country—we find a condition of affairs far from perfect, but nevertheless good and encouraging. It is to these that the city must finally look for its entire milk supply, because, as the city grows, our city and suburban dairies will vanish. The farmer is frequently found to be one who believes that in all transactions he gets the short end of the deal, but I believe that this is not the rule. On the contrary, I have found him willing to give and take, provided he deals with others of like mind. While there are some who will do nothing more than they must in order to get a market for their milk, there are others who fully appreciate the desirability of sending pure milk to the city, both from humanitarian and business standpoints. Such men you will find well posted on the milk problems of today, and I believe they will carefully follow out instructions based on practical experience given to them by men of good judgment. My visits to these farms showed me cows in fine physical condition; they were clean and of good breeding for the production of milk and cream. The stables for the most part were clean and whitewashed, and usually well drained. We found milk buckets and milk cans clean and out in direct sunlight. The dairies varied a great deal in their distance from the cow barns. Some were next to and directly communicating with the stables; others were quite a distance off, located over a spring. The interior of these dairies was clean and utensils in good condition. The bedding for the cows was of straw or hay; feed troughs and chutes were frequently found in the stables, all of which increase the number of bacteria in the atmosphere. Very frequently the water wells were too close to barnyards and other filth collectors, the seepage from which must reach the water wells sooner or later. The barnyards in many instances were passageways for cows from the fields to barn and return, thereby collecting filth that is with difficulty removed before milking, which makes it likely that it is frequently not removed at all.

These farms are usually within a radius of four miles from the railroad stations, and most of them not more than two and one-half miles. The distance from the railroad station and the condition of the roadbed are important factors in the quick delivery of milk, the cost of production, and the keeping of the multiplication of bacteria within bounds. Open wagons are employed, which expose the filled cans to the heat of the sun in summer and the cold in winter. Protection is sometimes attempted by covering the cans with a blanket, and on very cold days by adding the heat of a lan-

tern placed under the blanket. The milk-wagon drivers endeavor to reach the station not more than 30 minutes before train-time, because they must place their cans on open platforms, exposed either to heat or cold, until the train arrives.

The stations for Baltimore milk are probably all within a radius of 55 miles from Baltimore, principally on the Maryland & Pennsylvania, Northern Central, Western Maryland, and the main line of the Baltimore & Ohio. A small quantity of milk is brought to President Street Station over the Philadelphia, Baltimore & Washington Railroad.

The milk from the most distant station is not more than two hours and a-half traveling to the city. This is in great contrast with the most distant milk station from New York city, that distance being nearly 400 miles. In this respect our city is very much favored, but it will not be very long before it will be necessary to do one of two things—either to greatly increase the number of farm dairies within the present radii and increase the quantity of milk sent by the present farm dairies, or the increased supply must be obtained at more distant points. Then will be absolutely demanded a settlement of a question that should be considered and settled now, *i. e.*, the rapid conveyance of milk from the farm to the city in refrigerator cars. With the exception of one private refrigerator car, which runs between Hanover and Baltimore without being opened, there is no provision made by railroad companies to carry milk at a lower temperature than that of the atmosphere. Ordinary box cars are employed, and consequently the milk is exposed during the summer months not only to heat on the platform, but also within the cars during the journey to the city.

The milk is quickly removed by the consignees, who meet the milk trains at the several stations within the city, and at once distributed to consumers, or else it is taken to the establishment of milk dealers, where it is subjected to a process of cleaning—perhaps pasteurized and cooled. It is then delivered to consumers in bottles or in bulk (that is, by the quart or pint, drawn from a large milk churn), or in 40-quart cans to large consumers, such as hotels. The milk dealers within the past few years have found it necessary to install more or less expensive outfits for the purpose of meeting the demands of the citizens for a supply of better milk, and thus to undo some of the mischief that should have been prevented at the farms and railroad. The city now has two inspectors of milk, who are required to meet milk trains arriving in Baltimore at the several stations before mentioned at about the same time in the morning, thus making it impossible for two inspectors to examine the milk at every station every day without causing an amount of delay that is unjustifiable. Their work, however, has resulted in a marked improvement in our milk as far as the gross characters of the milk are concerned, *i. e.*, the specific gravity and the visible dirt. After the inspectors are through with the station work they turn their attention to the milk delivery wagons and the stores, carrying out the same regulations as at the stations.

During the last few weeks these inspectors, the inspector of city dairies and the inspector of markets, have assisted in obtaining milk specimens for bacteria counts, dust cultures from stables, and samples of milk to show the gross dirt, which have been examined and prepared by Messrs. Wright and Thomas, under the direction of Dr. Stokes and Dr. Lehman. Some of their work is here for your inspection tonight.

The dust cultures were made by exposing petri dishes in one or two places within the stable for 15 minutes, and after the colonies of germs developed they were fixed with formaldehyde gelatin, which stopped the growth of colonies and preserved them. The gross filth specimens were made by filtering a pint or quart of milk after being diluted with clean water. The filter paper, with the accumulated dirt, was mounted in formaldehyde gelatin. The specimens of the milk for the bacteria count were obtained, first, from milk producers within the city and suburbs; second, from retail milk dairies in the city and from small stores; third, from the milk cans at the railroad stations within the city limits.

The results have been tabulated and photographed. The first table will show the counts made from specimens from the milk bucket and milk cans in the producers' stables (city and suburban only). It is interesting to note that the cleanest stables gave the lowest count—10,000—while the dirtiest gave 7,920,000 in one cubic centimeter of milk.

The specimens from the retail city dairies have been divided into three classes, according to the count, the first class having less than 100,000 colonies; second, between 100,000 and 500,000 colonies; third, all above 500,000. You will at once recognize the very large proportion of specimens each showing millions of germs per cubic centimeter.

Another table will show the bacterial counts of milk specimens from Fulton, Calvert, North Avenue, and other stations, which bring out a great variation in the counts, and clearly show that something more than time, distance, and methods of transportation cause the great difference in the number of bacteria, because these three items are practically the same for all shippers from the same station. We find that in three specimens coming from the same station the count ranges from 70,000 to 2,524,000. It seems fairly clear that the cause of such a difference is in the care before, during and immediately after milking, and that an increase in the price of milk is not required to bring about an improvement.

Leaving the "present aspects" of our subject and turning to "the needs of the milk supply of Baltimore," we find much for careful study. Those of you who have been able to attend the previous lectures of this series have learned that this subject is of great and increasing interest to all people. Dr. Goler showed us what municipal milk work accomplished in Rochester, N. Y.; Mr. Prescott of Boston, Mass., showed that milk dealers find it profitable to employ skilled scientists to aid them in business; Dr. Knox showed the excellent and ever-increasing work of the Wilson Sanitarium in

saving the lives of infants by distributing pure milk; Mr. Lane of the Dairy Division of the Department of Agriculture showed the investigations of his Department and the knowledge and help they have ready for all who will ask, and, finally, Dr. Pearson showed the relation of infected milk to the spread of tuberculosis. What has been said already and that which will be said must, I am sure, convince you that there is great need for more and greater work by your Health Department.

This greater work is to be accomplished, first, by establishing relations of trust and confidence between the producer, dealer and health department, thereby producing a hearty co-operation. To do this it is of first importance for the producer to understand that it is of no advantage to a health department to impose unnecessary and burdensome regulations on the producer. What we desire is quick delivery of pure milk into the city, and this simply means to deliver the milk as nearly as possible in the same condition as it is taken from the udder. Therefore, it is necessary to cool the milk below 50° F. as soon as possible, thus retarding the multiplication of the few germs naturally in the milk, to keep it at a low temperature until delivered at the station, and to avoid adding anything to the milk accidentally or intentionally.

I am sure that this can be accomplished without requiring the producer to establish such model dairies that we see described and pictured in magazines and advertisements. Such model dairies are desirable, because they make the attainment of perfect cleanliness possible, but such dairies cannot be at once established, and therefore must for a time act only as models for producers to copy in this or that detail until after a time all will have grown, almost unconsciously, into models themselves.

I am sure that the evil conditions of farm dairies are due to the fact that the dairy business is a sort of addition to the general farm work. Producers can feel very certain that the demand for milk must increase because of the natural increase in the city's population, and equally certain that the production of better milk will increase the present demand. Baltimore consumes less than a half-pint of milk per capita each day. If one producer can now send milk to this city with but 10,000 organisms per cubic centimeter and his neighbor sends milk with 5,000,000 per cubic centimeter, there is something wrong in the management, and not the cost of production.

We know that accidents will happen, we know that producers have trouble with their help, but we know also that the milk supply will not improve if producers take more interest in its production than the hired men. It will be the function and desire of health officials not only to guard the purity of the milk, but also to assist the farmer in their efforts honestly made to meet requirements.

The second need is better care of milk *en route* to the city and quicker transportation. Quicker transportation will be facilitated by improvements in the roadbeds and by special milk trains. These

trains should be scheduled as soon as possible, because the need for them will be much greater in the near future, and they will develop a greater territory from which milk can be brought to the city. One train should be an express train for the more distant shippers. All the trains during a greater part or all the year should have sectional refrigerator cars. The railroad milk platform should be covered, and it may be necessary to have it artificially cooled, so that the cooled milk brought from the farm may be kept at 50° F.

Third need: For all milk dealers to establish modern, up-to-date dairies, where the milk can be properly cleansed, perhaps pasteurized and cooled, in rooms free from dust and flies, and to allow nothing that has not been sterilized to come in contact with the milk. All dealers should deliver milk in bottles, except to hotels and institutions where large quantities of milk are consumed, when large cans may be used. This is for the purpose of lessening the bad habits which some milk-wagon drivers have developed of filling dirty bottles taken from one house and delivering them to the same house or to a neighbor, and also of making sales to chance customers *en route,* the deficiency in the quantity of milk being made up by adding water. Sterilizing plants should be established not only for milk bottles, but also for thoroughly cleansing and sterilizing milk cans before they are returned to the producers. These things have been done by some dealers, but not all.

Fourth need: That the consumer shall become acquainted with the qualities of good milk, and demand it. Swithinbank and Newman say in the beginning of the fifteenth chapter in their book entitled "Bacteriology of Milk:" "Although much has been done by legislation, and doubtless much more would be done if the present law were wisely but firmly enforced, and although much has been done by several enterprising milk companies and commissions, the real control of the milk trade is largely in the hands of the public. The trade will supply what the customers demands, provided the dairy farmer and the milk purveyor know what to do and how to do it. Questions of price, outlay or compensation have a tendency to right themselves in the light of a well-informed public opinion and a rightly-cultivated public taste. A pure milk supply, that is, a clean milk of good quality, from healthy cows, properly strained and cooled, and properly protected from infection and contamination—which is the ideal we have suggested—could be obtained throughout the United Kingdom in 12 months' time if the public chose to insist that it should be so."

I heartily agree in the main with that statement, but another view should also be considered, and that is what the public demands of the producer and dealer or purveyor should be practiced by the public. Milk containers should be for milk alone. Whether it is a bottle or pitcher, it should be cleaned and sterilized when

emptied. When it contains milk it should not be allowed to remain uncovered; it should be kept cool; it should never be permitted to remain in a sickroom, and should be immediately sterilized when removed from the room. If you demand cleanliness and care, give the same in return.

In your households there is as much, and probably more, chance for milk to be contaminated with infectious diseases as in the producer's barn. A tuberculous servant is much more dangerous than one tuberculous cow in a herd. I doubt very much, indeed, if any case of tuberculosis has been actually produced in Baltimore except in those who drink milk produced in the city or close by, or from the milk of one cow.

Fifth need: That the Health Department of Baltimore city be immediately informed of the occurrence of sickness on a dairy farm, so that the proper officials could act in time to protect the milk from contamination, and sufficient power be given them to employ whatever measures may be deemed necessary in any case. Probably everyone believes that milk can carry infectious diseases, but it is very difficult to trace such cases through the general milk supply of a large city, and it is, therefore, all the more necessary to know the sources of such danger before the milk is contaminated.

Sixth need: There should be co-operation of the Maryland Live-Stock Sanitary Board, State Board of Health, and our City Health Department in the supervision of the health of the dairy cattle. This should apply not only to tuberculosis, but also to the other affections of dairy cows that result in pus milk. Swithinbank and Newman give the credit to Dr. Stokes, who is in charge of our laboratory, for the first work demonstrating pus in milk and showing it to be one of the probable causes of the summer complaint of children, and yet we are almost the last to move to put our knowledge into use. In these diseases the power should be given to segregate all sick cows, whether the disease be tuberculosis or a disease producing pus in milk, in order to keep the milk from market and to destroy such cattle if necessary. I believe that it should not be left to the owners of dairy herds to decide whether tuberculin tests should be made or not, but that it should be done by State or city authority, or both. I cannot here enter into a discussion concerning the costs of such work, but I beg leave to say that the city and State will stop at no expense to prevent or stamp out smallpox, yellow fever, cholera, etc., and provide for it out of the general tax levy. I can see no real difference between those diseases and the summer complaint of children, except the latter, like the poor, are always with us. In 1905 803 children died of this trouble. These deaths occurred in the sections of the city shown by the tacks in the map. Dr. Knox showed in his lecture the close relationship of the curved line produced by the number of

deaths of children to the curved line produced by the increase in the number of bacteria contained in milk. Arranged by months, we find 2 deaths occurred in January, 2 in February, 3 in March, 5 in April, 18 in May, 120 in June, 319 in July, 166 in August, 88 in September, 53 in October, 18 in November, 9 in December—total, 803—571 whites, 232 negroes.

Seventh need: That the Health Department be permitted to establish a distinct subdivision, to be known as the "Milk Division," which shall be in charge of a thorough and practical milkman, who knows the sources of contamination, and whose duty it shall be to point out to the producer or dealer a way to avoid them. The force of inspectors should be increased, so that a more thorough daily inspection can be made; that it also be permitted to establish a system of licensing all producers and dealers, the issuance of such licenses to be governed by the obedience to the Department's regulations by the applicants, but that no fee shall be charged for the license.

Eighth need: To have our friends, the members of the Honorable Board of Estimates, to see these things from our viewpoint.

MEDICAL ETHICS.

By Roger Brooke, M.D.,
Sandy Spring, Md.

If Hippocrates, the father of medicine (460 years before the Christian era, coming from a long line of descendants who had practiced the art of healing), declared the art to be one of a high and holy calling, and solemnly promised, "with the help of the higher Power, with purity and holiness, I will pass my life and practice my art, and say I will not divulge, but keep secret those things I see or hear that ought not to be spoken abroad," now, with 2400 years of scientific research and progress since the utterance of such noble sentiments, backed and encouraged by civilization and enlightenment, would it not be a shame, indeed, for any member of the profession to see a brother in this day and generation not measuring up to this standard? While it may seem hard to believe, I fear in this day of rush and pull, this day of ambition and desire to lead, many of us, if weighed in the balance of absolute justice and unselfishness towards our brother practitioners, would be found wanting. For instance, that brother is light in the scale of true moral worth and wisdom who will allow the laity to draw

an opinion out of him about a patient of another physician whom he has not seen; still more light, in the weight of good sense and ripe judgment, to volunteer an opinion or advice before he has been professionally employed. From the standpoint of your essayist, the physician who allows his name to be advertised in connection with any accident or illness that the daily papers choose to publish is allowing not only himself, but the fair fame of his honorable profession to be trailed in the dust of criticism and censure, and to avoid becoming entangled in these snares it behooves every one of us not to allow criticism or censure of a brother in our presence.

That the work of an honest and experienced scientist should be tried and condemned by a tribunal utterly unfit, for want of knowledge of the subject at issue, should not even be listened to by a brother of the said science.

In all cases when called to patients we have not treated before we have the right to ask *why* we are sent for, and if the reason is not entirely satisfactory, we are at liberty to prescribe in an emergency and then demand an explanation in writing from the former physician before we return. If more of this was done it would be better for all parties concerned. The most common cause of this trouble is, first, unpaid bills; second, want of confidence in medicine, which prevents our instructions being carried out. In chronic cases they so frequently get discouraged, and want to make a change, or "try another doctor," as they say, which they have a perfect right to do; but the one who has done his duty faithfully and made the diagnosis is entitled to be treated with respect.

Now, for our own errors and responsibilities in the matter of talking too much to our patients: It is very easy when sitting by the bedside of Mrs. B. to answer all her interested inquiries about her neighbor, Mrs. C., whom she heard was affected just as she is, except not nearly so ill. In such instances it is very hard not to say something that we had better left unsaid, and it comes to us as we drive away as an unpleasant memory. Indeed, I am not sure that it is not the overworked and very tired physician who is unconsciously slaying the beauty and honor of our profession upon her high places, and then wonders how it is that the mighty are fallen. The true definition of ethics has been given by good authority as that which treats of the duties of men, as rational, intelligent, and social beings. Now, I deem it the duty of every intelligent physician in a rational and social manner to go about his business in a way that will inspire confidence, trust, and admiration from whomever he may be called to prescribe, be he king, nobleman, business man or servant, and to do that he must keep away from the corner grocery, smithshop or public gatherings,

except absolutely when attending to his legitimate business, or the gossipers will fill his mind with idle thoughts at the expense of the physician's reputation and integrity, for it matters not how choice our words and language used, many have been misinterpreted. If you say the temperature was 103° and the pulse 120, that will be a starting place for it to be telephoned around the community that the pulse was 103 and the temperature 120°, which in the ears of the laity is only adding fuel to the already sensational flame. Indeed, I am not sure that we are not responsible for what we unconsciously let drop. A great deal of the comparing of opinions among the anxious laity (for truly they have cause to be anxious when they see their loved ones sick and are not able to tell how grave the condition is) leads to erroneous ideas and unjust criticism of the usefulness and ability of the physician discussed and in his noble work; hence the want of confidence in our being able to diagnose and treat disease, which they naturally suppose we should be able to do, regardless of the complications of disease or the incompatibility of remedies and the idiosyncrasies of the patients. This state of affairs brings about the desire that causes them to turn a willing ear to the charlatan, carrying them by rapid strides forward, from a weakened faith in the true science to a position of absolute doubt and skepticism, and thence to one of Eddyism.

The person who does not know what he believes, be it theology, medicine, business, or morals, is bound to catch on to the latest fad that comes along in his time, be it good or bad. Therefore we should walk circumspectly towards our brothers and before our patients, letting nothing be done through strife or vainglory, but in lowliness of mind let each esteem others better than himself, going quietly about his business, prayerfully considering the serious responsibility and gravity of our calling, with a confidence that will insure us in faith, that we have done the best our profession can afford, and giving the glory of success to the science and to the healing power of God, always remembering that Paul planted and Appolas watered, but God gives the increase. May I repeat, we must be "up and doing, with a heart for any fate," telling our failures and successes, our trials and rejoicings, not in Gath, publishing them not in the streets of Askalon, lest the daughters of the scoffers and skeptical should rejoice and the daughters of the compound, complex scientific cult of the twentieth century should triumph.

In conclusion, let each and all solemnly resolve that the glory and honor of our Hippocratic oath be not debased by a hypocritic life and practice. Finally, brethren, "whatsoever things are true, whatsoever things are honest, whatsoever things are pure, whatsoever things are lovely, whatsoever things are of good report, if there be any virtue, if there be any praise, think on these."

PROCEEDINGS

OF THE

MEDICAL AND CHIRURGICAL FACULTY

OF MARYLAND

Secretaries of the County Societies are earnestly requested to send reports of meetings and all items of personal mention and of local or general interest for publication addressed to Dr. Alexius McGlannan, 847 North Eutaw Street, Baltimore.

SUPPLEMENTAL REPORTS TO THE PRESIDENT'S MESSAGE, READ AT THE ANNUAL MEETING, APRIL 24, 1906.

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION.

To the Medical and Chirurgical Faculty of Maryland:

The committee appointed by the president of the Medical and Chirurgical Faculty to co-operate with the Council on Medical Education of the American Medical Association beg leave to report:

That the Council on Medical Education submitted a report to the American Medical Association dated July, 1905, in which they laid down the following guiding principles in reference to medical education:

"1. One of the chief functions of the American Medical Association should be the elevation of medical education in this country, and it should be its avowed purpose to secure throughout this country, within a reasonable time, as high a standard as that of any country in the world. Our position as a civilizing power and in commerce and arts and sciences demands this of American medicine.

"2. The elevation from present conditions to the high standard desired must be gradually brought about in justice to all con-

cerned, and we would not at this time recommend too sweeping changes."

In accordance with these principles the above-mentioned Council proposed, first, the outlines of an ideal standard, which they believe may be attained in the future, and, in addition, submitted a definite standard for present adoption, and recommended that its requirements be made effective by January 1, 1908. This latter standard has been adopted by the American Medical Association, and is as follows:

"1. *Preliminary Training.*—A high-school education or such education as will admit the student to our recognized universities. This requirement to be passed on by specially-designated State authorities, such as the superintendent of public instruction or his representatives, and not by the faculty of the medical school.

"2. *Medical Training.*—A four-year course in a medical college, each year of at least 30 weeks, with 30 hours per week of actual work (exclusive of holidays), no two courses to be taken in the same year. This course to be approved by a conference between the Council on Medical Education and the State and Territorial licensing boards and college authorities.

"3. The graduation from such an approved school should simply entitle the candidate to an examination before the State Examining Board.

"4. The passing before a State Licensing Board of a satisfactory examination and the securing of a license to practice."

The committee appointed from this Faculty have considered only the proposal with regard to the standard to be recommended for present adoption, and desire to say that they endorse unanimously this part of the report of the Council. In their opinion it embodies the requirements of a reasonable and feasible minimal standard which may be and should be enforced by every completely-organized medical school in the country. They beg leave, therefore, to recommend that this Faculty shall by formal resolution record its approval of the standard at present proposed by the American Medical Association, and shall direct its Committee on Legislation to arrange for such changes in the medical laws of this State as shall make them conform to the provisions of this standard.

Respectfully submitted,

W. H. Howell, *Chairman.*
C. F. Bevan.
David Streett.
St. Clair Spruill.

THE DISPENSARY EVIL—*By Hiram Woods, M.D.*

The president has asked me to speak of dispensary abuse and to suggest some possible remedy. What is dispensary abuse? In the absence of an orthodox definition I shall venture to present three practices, more or less common, which seem characteristic—(1) admission of applicants to a free clinic without adequate inquiry

into their deserts and necessities; (2) an apparent and sometimes stringent inquiry into these matters, but with the object of referring undeserving applicants to the private offices of the staff—in other words, making the dispensary a guidepost to the pay-list of dispensary physicians; (3) and, growing out of the second form of abuse, the multiplication of dispensaries, lacking, of necessity, in proper equipment, and intended not so much to meet the needs of the poor as to furnish a ladder whereby the founders can come into possession of a clinic from which patients may be diverted to *their* private offices.

The sifting process in admitting and excluding dispensary patients is not so easy as one without experience would imagine. Mistakes are readily made and deserving applicants turned away. This experience, repeated a few times, makes one more lenient in his decisions, and so more apt to let the undeserving slip through—maybe to cease investigation altogether. A not inconsiderable experience in dispensary work has led me to think that those applying for free medical attention may be divided, approximately, into three classes: First, the really poor. It is not hard to identify them. Their demeanor and manner of answering questions usually leave no doubt that they should receive gratuitous treatment. The chief source of error in this class is with those who, in spite of poverty, are doing all they can to present a good appearance. Many a sensitive woman, with ladylike instincts, making a few dollars a week by working all day, and presenting herself at a dispensary in the only good-looking apparel she has, is hurt by tactless questions, and goes without relief rather than face the ordeal of reciting her woes. A second class consists of those who have been better off, but are, for one reason or another, unable to pay for needed attention at the time. Possibly sickness has already been a source of great expense, and they can afford it no longer. Sometimes they talk frankly, sometimes hard experiences have developed an assurance and coarseness of manner strongly suggestive of the callous deadbeat, but, as a rule, these really deserving persons apply for treatment, and if pressed by what they regard as inquisitorial questions, retire. A third class, seen only in special or in the specialty departments of general dispensaries, consists of persons who pay moderate fees to the general practitioner in ordinary illnesses, but think they cannot pay office charges for special work. They often state that they can pay something. Their intentions are sincere, but rarely are they able to settle an indebtedness thus made, however small. These, I take it, are the classes, with certain limitations on the third, for whom dispensaries are intended. The problem is to distinguish them from a fourth class—hospital or dispensary deadbeats. This gentleman or lady—for the fair sex is not immune—seeks something for nothing, and, without really knowing it, relies on the lack of co-operation among physicians to obtain the object sought. They are evasive and plausible when questioned. Flattery is one of their characteristics. They come to the hospital because "they have spent a great deal of money on incompetent men," and are

now seeking "authority," who is said to be the head of the particular hospital or department in which they want treatment. There died a few years ago in this city a man whose estate in the Orphans' Court was assessed at something over $100,000. One of my earliest memories is washing wax out of this old man's ears at the Presbyterian Eye and Ear Hospital. It is a source of mortifying amusement to recall how the old fellow used to tell us youngsters that he came to the hospital because he knew he could "get the best." And we believed him, attributing to him a mental acuity and discernment not very common in the public, instead of putting him down for what he was—a rich dispensary deadbeat. Another comes to get the opinion of some particular surgeon or physician. His case is "intricate," the diagnosis "obscure;" there is no lack of trust in the family physician, but he evidently fails to "grasp the case in all its details," and an opinion is wanted from the "professor." This species of sponger may be the ordinary flatterer, or his desire for a consultation may be legitimate. But his object is not alone to get a professional opinion; it is to get it without cost, and often when he has it, to use this opinion as a weapon against his former attendant or as an excuse for not paying a just bill. Another interesting dodge by these people is to take a private room in a hospital and refuse to pay a fee because they went originally to the hospital. I believe the law allows collection of fees in such cases, but it means a suit, and often the amount involved is too small and trouble too great to justify legal action.

In this attempt to indicate the classes of persons one meets in dispensary work and some of the means of abuse I have not, of course, covered the whole field. Other classes and means will occur to one or another. The permanently poor, the temporarily embarrassed, the individual needing special help and yet unable to pay such fees as the specialist can afford to work for in his office, deserve free treatment. Their separation from the sponger is not always easy, and I want to emphasize this: *Turning away such applicants is a worse form of dispensary abuse than occasionally admitting the undeserving.*

The second abuse mentioned was reference, after determining the individual's unworthiness, to the private office of one of the dispensary or hospital staff. I speak of this as a form of dispensary abuse, and I believe it usually is, but it grows out of an attempt to lessen abuse. What is to be done with unworthy applicants after they are discovered? If sent away, they will go to some other dispensary, and the conscientious physician is abused and loses the patient, too. If told to return to their former physician, they will seldom go. A ready solution seems to be found in referring them to an office. There are on dispensary staffs young men with little practice to whom the small fees collectible from these patients are of timely use. These men do a great deal of work free, and have their living to make. What is more natural than to turn undeserving applicants to their direction? Why, then, is this turning a form of abuse? Simply because it makes the free dis-

pensary a rival with outside physicians and a means of depriving them of their patients. The latter deserve no sympathy. If, after trying to save legitimate expenses in one place, they are compelled to pay in another, they get no more than they deserve. But in the transfer several things happen: A practitioner loses a patient through the medium of a charitable institution; the man so wronged looks upon this institution as his professional enemy. Even its scientific standing, in the eyes of the medical fraternity, is injured if this thing occurs often, and an institution intended to do public good and to uplift the profession can really be a source of discord and incur professional ill-will. The staff members incidentally helped by this transfer method do not receive an unalloyed blessing. Unless they possess more than the average amount of devotion to their dispensary duties and are indifferent to financial returns, they will, sooner or later, find themselves surveying the patients from a commercial point of view. In a word, their efficiency as dispensary physicians is hampered by watchfulness for the main chance. This disadvantage may be avoided, possibly, by having the sifting done outside the dispensary and office references given by a clerk without consulting the physician. Even so, the dispensary is the guidepost, and men who profit indirectly by its pointings must incur the dislike and distrust of those wronged.

Persons thus referred from dispensaries usually belong to one of two classes. A little inquiry will determine which. While not dissatisfied with their physician, they know that somebody else has beaten his way, so they determine to try it themselves. It may be urged that when a dispensary has tried to prevent such an individual receiving *free* attention, its full duty is done; further, that by a reference to an office there is greater security against the undeserving applicant's ultimate success than by turning him away. Under existing conditions there is truth in this. Whether the conditions are themselves right or can be beneficially modified is another question, but of this more will be said in a moment.

Persons of the second class admit distrust in the former medical attention. They want another opinion, and come to the dispensary to avoid expense. If questioned, they admit they can pay a small fee, and did so until they concluded the physician was not doing them justice. They are attracted to the institution by the reputation of one of its chiefs; they want the benefit of his diagnostic skill, but they want it through some other channel than that of the regular and usual consultation. What attitude should a charitable institution assume toward these persons, sometimes sincere, again the most veritable pretenders? They demand individual study, and if they are indiscriminately referred to offices there is great risk of doing *them* injustice if they are worthy, or doing a greater injustice to some physician if, as is usually the case, they are unworthy.

The last form of abuse to which I have alluded is the multiplication of dispensaries. The object of their establishment is not always apparent. As stated, sometimes it looks as if business interests were at the bottom of the alleged philanthropic enterprises. Be this as it may, no free dispensary, improperly equipped, lacking in funds to maintain expenses, and not needed by the deserving poor, can be aught but a pauperizing institution, even if it does not become demoralizing.

Six years or so ago New York State undertook to remedy the various forms of "dispensary evil" by legislation. An interesting account of the workings of the law is given in an editorial in the *Journal of the American Medical Association* for March 10 last. The dispensary evil is held to be the "unrestricted multiplication of dispensaries and the indiscriminate bestowal of medical charity alike on the well-to-do, the self-supporting, and the indigent." The editor thinks that the law has failed to materially reduce the number obtaining free medical attention unworthily. The regulation of dispensaries has, however, been accomplished and their useless multiplication stopped. As this editorial explains the law's workings and sets forth some of the reasons which make dispensary abuse hard to correct, I beg to quote some of the paragraphs:

"The New York law requires all dispensaries to be licensed by the State Board of Charities. No dispensary may be opened unless it can be shown that there is need for such an institution in that locality and that when it is established it will be properly maintained. Suitable buildings must be provided, drug stores or tenements may not be used, seats for all applicants must be provided, cleanliness must be maintained, and a matron or female nurse must be present at all gynecologic examinations or treatments. The apothecary must be a licensed pharmacist or a medical graduate. Regularity of service is insisted on, and also strict rules regarding the isolation of contagious diseases. The Board is empowered to revoke the license for cause, and has done so when necessary.

"These provisions are certainly not unreasonable, and it should be possible to enforce them. * * * In 1899, previous to the passage of the bill, dispensaries were in operation in tenement-houses, drug stores, and dilapidated old buildings and shanties. One, which reported treating 48,000 patients annually, was conducted in a wooden structure 12x20 feet and 8 feet high; in another water for physicians and patients was brought in a bucket from the next building. The last report of the Board showed that 109 out of 119 dispensaries inspected were found in location and equipment to meet the requirements of the law. There has been an actual diminution in the number of dispensaries in spite of the steady increase in New York's population. In 1899 there were 136 dispensaries, in 1904 only 119, although the population of New York city has increased 150,000 annually during that time. In the matter of the

proper conduct of gynecologic clinics, the keeping of records, and the regularity of attending physicians the Board reports decided improvement.

"Undoubtedly, then, the law has been of marked benefit in raising the character of medical care in free dispensaries, and from this point of view it may be held up as a model to other States. But why should it have failed in remedying the evil for which it was specially framed? The answer is interesting, for it seems that while the medical profession was responsible for the framing of the law, and is, of course, the chief sufferer from the abuses which it sought to abolish, it is the medical profession which defeats and nullifies it. Practically no genuine effort is made to weed out from a dispensary clinic the patients who probably are able to pay a physician's fee. Physicians in charge of dispensary clinics take pride in having a large number of patients on their days. Moreover, the well-dressed, prosperous-looking patient may prove to be the most interesting case of all. Hospital superintendents are quoted as saying that if they should restrict the dispensary cases to those who are clearly too poor to pay a physician the clinics would be so reduced that it would be impossible to retain the best specialists on their staffs. Dispensary registrars report that any attempt to use strictness in the admission of applicants meets with disapproval from the physicians. There is another motive sometimes encountered in privately-conducted dispensaries, namely, the pecuniary gain represented by even a very small fee. Dr. G. C. Sturges mentioned instances of dispensaries charging a 10-cent fee which made from $1200 to $3000 a year."

The essentials of the dispensary evil, if my analysis be correct, are varied, and in their ultimate definition are parts of character. There would be no abuse if everybody were, so to speak, "on the square." But everybody is not. The deserving and undeserving could be easily separated if our judgment were always unselfish and infallible. But neither of these conditions exists. Attempt to remedy the evil by the office-reference method would not result, as it usually does, in substituting one form of abuse for another if there were not something essentially wrong with the method or with its enforcement. Does not the regulation of the evil, then, so far as the medical profession is concerned, become a matter of recognizing the doctrine of reciprocal responsibility? And when once recognized, does it not place on us the duty of finding some way of putting it into effect? I believe the evil is perpetuated not so much by failure on our part to recognize as by the absence of *method* in fulfilling this reciprocal responsibility. No *one* may, no *one* dispensary can remedy the evil, no matter how sincere and painstaking efforts may be. If anything is to be done, professional co-operation must be at the bottom of it. One method of inquiry as to merit should prevail everywhere. Records should be kept and fre-

quent comparisons of records made. While individual liberty to regulate its own behavior should be maintained by an institution, this individual liberty should be subject to general recognition of the rights of others. One of these rights will, I believe, be uniformly conceded—that a conscientious physician, doing his best for the welfare of those under his care, should not have to meet business competition from an endowed charity or from one supported by public money. We regulate relations in private professional life, to at least a great extent, by what we call "ethical" standards. Is it possible to educate professional opinion to the point of applying ethical standards to dispensary abuse? To do so demands time, labor, and expense. Is the abuse great enough to justify the expenditure? Even if it is, can a working basis be found? Certainly not one that will suit everybody, just as no form of ethics ever devised will meet all possible exigencies. The solution, Mr. President, if ever reached, will be reached, in my judgmnt, only by what I shall call co-operative study of the question. If a tribunal having the authority of this Faculty, composed of men in whose judgment and desire for square dealing the members of the Faculty have confidence, could undertake this study, seek testimony from the physicians who claim they are wronged, and from the authorities of institutions said to do the wrong, something of practical good might—nay, I believe would—result. Such co-operative study of the dispensary evil, backed by a genuine desire of this Faculty to remedy it, provided the desire exists, is all I have to suggest, but without a pervading and genuine desire and frank co-operation we might as well do nothing. This meeting might take the initiative by requesting the House of Delegates to appoint such a tribunal, to be called, by way of suggestion, "A Committee to Investigate the Extent and Possibility of Correcting the Dispensary Evil."

ANNOUNCEMENT.

ARRANGEMENTS are being made to hold the semiannual meeting of the Medical and Chirurgical Faculty at Annapolis on September 27-28, 1906. In many ways unusual opportunities will be afforded both socially and scientifically, and it is hoped that a larger number than usual will attend the meeting. Reserve these two days for the Faculty. Members desiring to read papers are urged to send the titles to the Committee on Scientific Work and Arrangement before August 10.

DR. A. P. HERRING, Chairman.

1317 Madison avenue, Baltimore.

MINUTES OF THE ANNUAL MEETING OF THE MEDICAL AND CHIRURGICAL FACULTY, BALTIMORE, APRIL 24-26, 1906.

HOUSE OF DELEGATES.

The twelfth meeting of the House of Delegates was called to order by the President, Dr. Earle, at 2.20 P. M., Tuesday, April 24, in the Donovan Room, McCoy Hall, Johns Hopkins University.

The following members were present: Drs. A. H. Hawkins, T. H. Brayshaw, F. B. Smith, R. S. Page, S. J. Fort, W. F. Hines, Roger Brooke, L. A. Griffith, W. G. Weedon, J. A. Stevens, J. W. Humrichouse, C. O'Donovan, W. S. Gardner, W. T. Watson, A. C. Harrison, J. M. H. Rowland, J. M. Craighill, J. E. Gichner, G. M. Linthicum, A. Williams, T. A. Ashby, R. W. Johnson, Hiram Woods, S. T. Earle, G. L. Taneyhill, G. J. Preston, W. E. Magruder.

In the absence of the Secretary, Dr. Ruhräh, Dr. Magruder, the first assistant secretary, served in his stead.

The minutes of the preceding meeting were read and approved, after which Dr. Earle asked consent of the House to call for consideration on resolution for changes in the Constitution and By-Laws on April 25 at 9.30 A. M.

Dr. Woods explained these changes on behalf of the Committee appointed to consider the matter.

Report of the Trustees was read by Dr. Taneyhill, Chairman, and accepted.

Report of the Council was read by Dr. Johnson, Chairman, and accepted.

Reports of the Secretary and Treasurer were read and accepted.

Dr. Preston read the report of the Library Committee, which was accepted.

Report of Dr. Welch, Chairman of the Committee on Public Policy and Legislation, was read by the Secretary and accepted.

Report of the Relief Fund Committee was read by the Chairman, Dr. E. F. Cordell, and accepted.

A suggestion was made in regard to this report by Dr. Gichner, who moved that $100 be appropriated annually for the Relief Fund for Widows and Orphans. Seconded by Dr. Taneyhill. Referred to the Finance Committee.

Dr. Griffith asked that consideration on the By-Law relating to county members be postponed until Thursday, April 26.

Motion to this effect made by Dr. Taneyhill, seconded by Dr. Craighill. Carried.

Dr. Earle set 9.30 Thursday morning as the hour for consideration of this By-Law.

Report of the Board of Medical Examiners was read by Dr. Scott, Secretary, and accepted.

Dr. Taneyhill moved the appropriation of money sufficient for fire-extinguishers and that the matter be referred to the Finance Committee. Passed.

Dr. Linthicum moved reconsideration of motion to appropriate $100 for Fund for Widows and Orphans be ordered.

Dr. Linthicum then moved that the House of Delegates disapprove of this appropriation. Carried.

The House adjourned.

The thirteenth meeting of the House of Delegates was held in the Donovan Room, McCoy Hall, Johns Hopkins University, Wednesday morning, April 25, at 9.15.

Dr. Earle presided.

The following members were present: Drs. T. H. Brayshaw, G. H. Hocking, C. Birnie, G. Steele, S. J. Fort, R. Brooke, W. G. Weedon, G. E. Dickinson, J. A. Stevens, W. F. Hines, Paul Jones, C. O'Donovan, W. S. Gardner, H. Cushing, A. C. Harrison, J. M. H. Rowland, A. Williams, W. P. Miller, J. W. Humrichouse, R. W. Johnson, S. T. Earle, G. L. Taneyhill, and W. E. Magruder, acting secretary.

The report of the Committee to Co-operate with the Council on Medical Education of the American Medical Association was read by Dr. Magruder in the absence of Dr. Howell, Chairman. Accepted.

Dr. Earle then asked that the resolutions of Dr. Howell be introduced:

"Resolved: That the Medical and Chirurgical Faculty of the State of Maryland expresses its approval of the minimum standard of medical education as adopted by the American Medical Association, July, 1905, and

"Resolved: That the Committee on Legislation of this Faculty is hereby directed to arrange for such changes in the medical laws of this State, to be presented at the next meeting of the legislature, as shall bring these laws in full conformity with the requirements of this minimum standard."

The resolutions as introduced were adopted.

Dr. Woods reported on dispensary abuse, and moved that the Chair appoint a Committee to investigate the extent and possibility of correcting this abuse. Carried.

The Secretary was asked to read the resolutions of Dr. Reik.

On motion of Dr. Taneyhill Dr. Reik was allowed to read his own resolutions, which are as follows:

"Resolved: That the Medical and Chirurgical Faculty of Maryland expresses its hearty approval of the action of the American Medical Association in establishing a Council on Pharmacy and Chemistry for the investigation of non-official drugs and medical preparations, and endorses the plan of action proposed by said Council.

"Resolved: That the Medical and Chirurgical Faculty of Maryland desires to record its appreciation of the change which has taken place in the advertising columns of the *Journal of the American Medical Association,* and to express the hope that this *Journal* will soon be entirely rid of advertisements that may in any sense be considered questionable. Looking to the accomplishment of such a state of affairs, the Faculty hereby instructs its delegates to the American Medical Association to endeavor to induce the House of Delegates of that body to consider favorably the advisability of excluding all medical advertisements from the columns of the *Journal."*

Dr. Taneyhill moved that the House of Delegates refer to the Council and recommend the adoption of Resolution No. 1. Carried.

Dr. Taneyhill moved that Resolution No. 2 be referred to the general session, with recommendation for its adoption. Carried.

The Secretary then read a letter from a Committee of the Maryland State Dental Association, asking that a Committee be appointed to confer as to the possibility of securing from the Faculty a room with library privileges to be used by members of the Maryland State Dental Association.

Dr. Gardner moved that the matter be referred to the Council. Carried.

Dr. Woods was called upon to present amendments in the Constitution and By-Laws for adoption:

Article VI, Section 1, of the Constitution to be amended by adding the words "No Councilor shall be eligible as a delegate of a component society."

Laid over according to the Constitution.

Dr. Woods moved the adoption of Chapter I, Section 2, of the By-Laws.

A motion was made by Dr. Taneyhill to postpone until tomorrow the consideration of this section.

Dr. Woods moved that the words "and arrangements" be added in Chapter VI, Section 1, after the word "work."

Dr. Woods moved the adoption of Chapter VI, Section 1, Amendment *a*.

Dr. Stevens moved Amendment *a*, Chapter VI, Section 1, be laid upon the table. Carried.

Dr. Woods moved that an amendment be made to Chapter VII, Section 6, *c*, by adding the words "and such defense shall be granted only to members residing in Maryland, and not the non-resident or affiliated members." Adopted.

Dr. Woods offered an amendment to Chapter VIII, Sections 1 and 2.

Section 1, after the words "as follows," "A Committee on Scientific Work and Arrangements. A Committee on Public Policy and Legislation. A Library Committee." Passed.

Section 2, insert the words "and arrangements" after the words "Committee on Scientific Work."

Embody Sections 2 and 4 as one section, numbered Section 2, and connect the present Sections 2 and 4 with the words "it shall also." Passed.

Chapter VIII, Section 5, Amended by changing Number 5 to 4. Passed.

Amend Section 5 by adding thereto "no Committee shall expend money save by authority of the Council." Passed.

Chapter IX, Amend Section 10 by changing figure 10 to 9. Passed.

Dr. Reik was asked to read his resolution on the JOURNAL, "As to whether the Faculty should publish its own journal."

Dr. Stevens moved to lay the resolution upon the table. Lost.

Dr. Johnson moved that the privileges of the floor be granted Dr. Reik and Dr. Simmons to represent the opposing interests of the subject. Carried.

Dr. Reik then made a statement of his investigations and was followed by Dr. Simmons.

Dr. Linthicum moved that a committee of five be appointed to confer with representatives of the MARYLAND MEDICAL JOURNAL to see if some agreement could be reached. He temporarily withdrew his motion to allow Dr. Fulton to be heard.

Dr. Johnson offered as an amendment to Dr. Linthicum's motion "that

the question be referred to the Council, with power to act." Passed as amended.

The House then adjourned.

The fourteenth meeting of the House of Delegates was called to order by the president, Dr. Earle, April 26, at 9.30 A. M., in the Donovan Room, McCoy Hall, Johns Hopkins University.

The following members were present: Drs. A. H. Hawkins, T. H. Brayshaw, T. M. Chaney, C. Birnie, H. Bratton, Guy Steele, F. B. Smith, R. S. Page, S. J. Fort, W. F. Hines, Roger Brooke, L. A. Griffith, W. G. Weedon, G. E. Dickinson, J. A. Stevens, J. W. Humrichouse, Paul Jones, C. O'Donovan, W. S. Gardner, W. T. Watson, A. C. Harrison, J. M. H. Rowland, J. M. Craighill, J. E. Gichner, G. M. Linthicum, R. W. Johnson, H. Woods, S. T. Earle, G. L. Taneyhill, and W. E. Magruder.

Dr Earle suggested that a committee be appointed to act in conjunction with representatives of the lay press.

Vote was taken upon this suggestion and carried.

Dr. Earle suggested a special committee be appointed to confer with the State Board of Health for the purpose of making a proper amendment to the medical-practice act.

This was put to vote and carried.

Dr. Steele reported progress of the Committee on Midwifery Law, and hoped to have something substantial to bring before the next meeting.

Dr. Woods moved that the Committee be continued. Carried.

Amendment to the By-Laws was then called for, and Dr. Woods read the amendment proposed:

Chapter I, Section 2, Amend by adding after the last words of the section, "relieved of such disability," the words "by the Council."

Dr. Hawkins moved that it be laid on the table. Carried.

Dr. Woods then offered an amendment to Chapter IX, Section 4: Amend Section 4 by adding thereto the following: "Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right to appeal to the Council, and its decision shall be final."

Dr. Linthicum moved to adopt this amendment. The motion was lost.

Dr. Johnson moved that the Program Committee be authorized to arrange meetings of the House of Delegates from 11 o'clock until 2, and scientific sessions from 2 o'clock until 6, daily, at future meetings so as to prevent conflict between the business and scientific sessions. Carried.

Election of officers was then called for.

Drs. Fort and Gardner were appointed tellers.

The following were elected:

President—Dr. Hiram Woods.

Vice-Presidents—Drs. William T. Watson, Philip Briscoe, William F. Hines.

Secretary—Dr. John Ruhräh.

Treasurer—Dr. William S. Gardner.

Board of Trustees—Dr. J. M. H. Rowland.

Councilors, Western Shore—Dr. C. Birnie, Taneytown.

Councilors, Eastern Shore—Dr. Guy Steele, Cambridge.

Councilors, City—Dr. R. W. Johnson.

Drs. Paul Jones, Snow Hill, and S. T. Earle, Jr., were elected to serve in the places of Drs. Hiram Woods and W. F. Hines, resigned to fill other offices.

Committee on Scientific Work and Arrangement—Drs. A. P. Herring, G. M. Linthicum, John Ruhräh.

Committee on Public Policy and Legislation—Drs. W. H. Welch, John D. Blake, John W. Chambers.

Library Committee—Drs. J. W. Williams, Harvey Cushing, J. F. Crouch, H. B. Jacobs, W. Rush Dunton.

Delegate to the American Medical Association—Dr. G. L. Taneyhill; alternate, Dr. B. W. Goldsborough.

State Board of Medical Examiners—Drs. J. McP. Scott and E. J. Dirickson were nominated, and their names referred to the general session with recommendation for election.

The following were appointed to office by the President:

Memoir Committee—Drs. Joseph T. Smith, H. R. Hopkins, Frank D. Sanger, J. L. Lewis, E. L. Whitney.

Committee for Fund for Relief of Widows and Orphans of Deceased Members—Drs. Eugene F. Cordell, S. A. Nichols, D. Webster Cathell, J. F. Somers, J. I. France.

Auxiliary Congressional and Legislative Committee of the American Medical Association—Dr. William Caspari.

Committee on Midwifery Law—Drs. Guy Steele, H. Bratton, J. W. Williams, W. Brinton, George W. Dobbin, L. Gillis Owings.

Committee on Medical Education—Drs. W. H. Howell, D. Streett, C. F. Bevan, St. C. Spruill.

Committee on Dispensary Abuse—Drs. W. S. Thayer, G. L. Wilkins, W. T. Riley, S. K. Merrick, H. W. Kennard.

Committee to Confer With Lay Press—Drs. R. B. Warfield, C. W. Mitchell, G. L. Taneyhill, Jr., Frank D. Gavin, J. J. Carroll.

Committee to Confer With State Board of Health—Drs. James Bosley, George H. Hocking, W. R. Eareckson, J. H. Billingslea, John H. Jamar.

Delegates to the North Carolina State Medical Association—Drs. T. A. Ashby, St. C. Spruill.

Delegates to the Pennsylvania State Medical Association—Drs. A. F. Van Bibber, W. Preston Miller.

Delegates to the Delaware State Medical Association—Drs. S. G. Fisher, James E. Graham.

Delegates to the West Virginia State Medical Association—Drs. E. B. Claybrook, H. W. McComas.

Delegates to the Virginia State Medical Association—Drs. T. H. Brayshaw, T. C. Routson.

The House adjourned.

GENERAL SESSION.

The one hundred and eighth annual meeting of the Medical and Chirurgical Faculty of the State of Maryland was held at Baltimore April 25, 26 and 27, 1906.

The opening session was held at McCoy Hall, Johns Hopkins University, Tuesday, April 24, at 8.30 P. M., Vice-President Dr. Charles O'Donovan in the chair.

The program was as follows:

Message of the President—Dr. Samuel T. Earle, Jr.

Supplemental Reports:

Medical Education—Dr. Wm. H. Howell.

The Advisability of the Faculty Publishing Its Own Journal—Dr. H. O. Reik.

Dispensary Abuse—Dr. Hiram Woods.

Dr. Reik's report was discussed briefly by Drs. Grove, Blake, Brown, Winslow, and Bond.

On motion of Dr. Bond the meeting adjourned.

WEDNESDAY MORNING SESSION, APRIL 25, 1906—FACULTY HALL, 10.45 P. M.

In the absence of the President, the session was called to order by the Vice-President, Dr. O'Donovan.

Later in the meeting Dr. O'Donovan asked Dr. Goldsborough to preside, and in the absence of the acting secretary, Dr. Magruder, Dr. J. A. Chatard was appointed secretary *pro tem.*

The following papers were read:

"Cervical Adenitis (Glandular Fever)," Dr. H. T. Marshall.

Discussion by Dr. O'Donovan and others.

"A Case of Sarcoma of the Hyoid Bone and Larynx, With Removal of the Hyoid Bone, Base of Tongue, Larynx, and Part of the Pharynx, Under Local Anesthesia," Dr. Randolph Winslow.

"Tumors of the Breast," Dr. Alexius McGlannan.

Discussion by Drs. Winslow and McGlannan.

"An Analytical Study of Acute Lobar Pneumonia in the Johns Hopkins Hospital, May, 1889-May, 1905," Dr. J. A. Chatard.

Discussion by Drs. Scott and Chatard.

As Dr. Gardner and Dr. Hirshberg were absent when called upon for their papers, the meeting was adjourned.

WEDNESDAY AFTERNOON SESSION, APRIL 25.

The afternoon session was held at the Quarantine Station, Hawkins Point. The members were conducted through the new sterilizing, fumigating plant and detention-house.

The meeting took place on the veranda of the home of Dr. Heiskell, the quarantine physician, Dr. Bosley presiding.

Dr. M. J. Rosenau, director Hygienic Laboratory, United States Public Health and Marine Hospital Service, read a paper on "Some of the Recent Aspects of Quarantine and Its Relation to Public Health."

Drs. Heiskell and Bosley gave short talks on hygiene and sanitation.

The meeting adjourned.

WEDNESDAY EVENING SESSION, APRIL 25—MCCOY HALL, JOHNS HOPKINS UNIVERSITY, 8.30 P. M.

The meeting was called to order by the President, Dr. S. T. Earle, and the following program was carried out:

Annual Oration—"The Rôle of Pure Cow's Milk in Infant-Feeding," Dr. A. Jacobi, New York.

Presentation of Portrait of Dr. Richard Macsherry to the Medical and Chirurgical Faculty by his sons, Dr. H. Clinton Macsherry and Mr. Allen Macsherry.

Presentation Address—Dr. S. K. Merrick.

"*Mr. President and Members of the*
Medical and Chirurgical Faculty of Maryland:

"It becomes my duty and great privilege tonight to present to this Faculty the portrait of one whose labors have long since ceased among us, and who, by necessity, was unknown to a large part of this audience.

"I had the rare privilege, more than a quarter of a century ago, of being one of his pupils, and this explains my presence here tonight in my present capacity.

"It is therefore fitting that a short *résumé* of his work and a very brief biographical sketch should precede any remarks which may follow. Not that these would be essential to the enlightenment of those who knew him and loved him (and I see many such before me), but to those younger members of the profession, at least, it will give some information otherwise lacking.

"It has been said by a great philosopher that 'the surest way to court oblivion for ourselves is to be oblivious of those who have gone before us.' In honoring those who were worthy, who did good in their day and generation, we honor ourselves.

"The subject of this sketch was born in Martinsburg, Va., November 21, 1817. He was educated at Georgetown College, and attended lectures at the Universities of Maryland and Pennsylvania. He was assistant surgeon in the United States Army, 1841-42, serving in the Florida War; surgeon in the United States Navy, 1842-51, serving in the Mexican War; resigned 1851, and began the practice of medicine in Baltimore.

"He was made lecturer on materia medica in the University of Maryland in 1862, professor of materia medica in 1863, and professor of the principles and practice of medicine in 1864, which position he filled with signal ability until 1885, the year of his death.

"He was Founder and first President of the Academy of Medicine in 1877, Vice-President of the Medical and Chirurgical Faculty in 1871-72 and 1882-83, President of this Faculty 1883 to 1884, and President of the State Board of Health, 1884. He was the author of 'El Pucher's, or a Mixed Dish From Mexico,' 1850; 'Essays and Lectures,' 1869; 'Health and How to Promote It,' 1879, second edition 1883.

"A copy of his last work I hold in my hand, and a perusal of its contents throws a flood of light on the character of the author. It has been said by

a great critic that if Burns had never written a line of poetry but the following stanza he should rank as a great poet:

"'Had we ne'er loved so kindly,
Had we ne'er loved so blindly,
Never met and never parted,
We had ne'er been broken-hearted.'

"In these touching lines is condensed the biographies of two lives, so complete that nothing need be added.

"In the preface to this little volume its author has told us that its contents 'were written for the most part as a diversion from the severer studies and labors attendant upon the profession of medicine.'

"In his lecture, 'Health and Happiness,' we find many passages which clearly show the purity of his mind and nobleness of his aspirations, and furnish an explanation of his blameless Christian life and devotion to professional duties. As a family physician he was ideal; he measured up to the standard set by Ian Maclaran in his inimitable work which has been read by thousands with delight on two continents.

"As a teacher and lecturer he was clear and concise, studiously avoiding high-sounding and unnecessary words. He was a man of great modesty, and had the rare gift of keeping self in the background, while keeping the subject under discussion unerringly to the front. While his style was not ornate, it was both chaste and elegant, for he was a man of scholarly attainments. His rapid promotion at the University of Maryland, an institution which has always maintained so high a standard of scholastic and professional training in its faculty of physic, as well as that of law, was a tribute to his worth. His was a busy life. Enjoying a large practice among many of the most influential citizens of this city, teaching regularly his classes at the University, and discharging the multifarious functions pertaining to his official positions in medical and other societies and in his church, he exemplified in a peculiar degree the injunction of a great philosopher, viz., live as though you might die at any time, but work as though you might live forever. He died in the harness, a cultivated physician, a Christian gentleman.

"He belonged to a type which has aptly been styled 'the old-school gentleman,' for the present generation is not reproducing him. There was a nameless something which gave a grace, a charm and dignity to the manners of this type of man which required a peculiar environment for its development, and I fear that environment is fast disappearing. Let us hope we may not lose entirely the noble sentiments which inspired these worthies, even if we are not able to imitate their grace and charm of manners.

"It gives me great pleasure as one of his pupils and admirers to present the portrait of the late Prof. Richard Macsherry to the Medical and Chirurgical Faculty of Maryland in the name of his surviving sons. As a work of art I do not think it will suffer by comparison with the portraits which decorate the walls of the Faculty Hall—a most fitting place for his among his friends and *confrères,* who with him 'have crossed over the river to rest in the shade.'

"It may be truthfully said of him in the language of Antony, 'His life was gentle, and the elements so mixed in him that nature might stand up and say to all the world, *this was a man.*'"

THURSDAY MORNING SESSION, APRIL 26—FACULTY HALL, 11 A. M.

The meeting was called to order in the Faculty Hall by Vice-President O'Donovan at 11 A. M.

In the absence of the acting secretary, Dr. Magruder, Dr. J. H. M. Knox was appointed secretary *pro tem.*

The program was as follows:

"A New Fever-Producing Organism," Dr. L. K. Hirshberg.

Discussion by Dr. Stokes.

"General and Metastatic Gonococcus Infections," Dr. R. I. Cole.

Discussion by Dr. Thayer.

"Hydrotherapy in Private Practice," Dr. J. E. Gichner.

Discussion by Dr. Thayer.

Business session resumed.

The House of Delegates returned the names of Drs. J. McP. Scott and E. J. Dirickson for members of the State Board of Medical Examiners.

These were elected.

Scientific session continued.

Credentials were presented by Dr. Isaac N. Snively, Waynesboro, Pa., representative of the Pennsylvania State Medical Society.

"A Case of Congenital Transposition of the Viscera, With Exhibition of the Patient," Dr. J. Buck.

Discussion by Drs. Gichner, Thayer, Pancoast, G. Wilson.

"The Removal of an Unusually Large Stone by Suprapubic Cystotomy (Exhibition of Stone), Dr. B. W. Goldsborough.

"Thrombosis of the Bulb of the Internal Jugular Vein of Otitic Origin," Dr. J. J. Carroll.

Discussion by Dr. Welch.

"The Importance of the Early Recognition and the Operative Treatment of Malignant Tumors," Dr. J. C. Bloodgood.

"A Case of Anterior Mediastinal New Growth, With a New Physical Sign of Aneurism of Aortic Arch (Exhibition of Cases)," Dr. Gordon Wilson.

"Some Observations on the Value of Occult Hemorrhage in the Diagnosis of Ulcer and Carcinoma of the Stomach," Drs. J. Friedenwald and L. J. Rosenthal.

THURSDAY AFTERNOON SESSION, APRIL 26—MCCOY HALL, JOHNS HOPKINS UNIVERSITY, 4.30 P. M.

Dr. Earle presided, and the following papers were read:

"Some Recent Advances in the Study of Tropical Diseases," Dr. L. F. Barker.

"The Part Played by Insects in the Transmission of Disease—Lantern Demonstration," Dr. W. T. Watson.

"The Milk Supply in Foreign Countries—Lantern Demonstration," Dr. J. S. Fulton.

The meeting adjourned.

A banquet was held Thursday evening at the Faculty Hall at 8.30 o'clock.

Society Reports.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD FEBRUARY 19, 1906.

Report of Case—Dr. Thayer. The patient, W. C., medical No. 53,072, aged 43, was admitted October 3, 1905, complaining of paroxysmal attacks of coughing, accompanied by the expectoration of large amounts of foul matter, for the past four months. He had been getting weaker, and had a severe pain in the right side of the chest.

The sputum was very foul, like that in bronchiectasis, but possessed a peculiar nauseating fetor unlike anything smelt before. This odor was very bad in the ward, and deodorizers were of no use. The urine was normal, the blood pressure rather low, and the respirations somewhat accelerated.

On examination there was found some clubbing of the fingers, some dullness in the right axilla, and in the right back a small area below the spine of the scapula where the respirations were slightly tubular. There were a few medium, moist rales heard, but no signs of cavity were present.

On December 19 the fluoroscopic examination was negative except for a marked consolidation of the lower right lobe.

The temperature ranged between 98° and 102°, and there was a steady loss of weight. The patient became steadily worse and the sputum more abundant. This sputum separated into layers in a glass, contained no tubercle bacilli or influenza bacilli—in fact, nothing remarkable beyond the usual sputum contents. The loss of weight continued steadily, and the patient seemed like a man profoundly intoxicated.

We tried to find something beyond the evident bronchiectasis, and generalized tuberculosis was thought of as the patient steadily lost ground.

On the 13th of January a needle inserted in the back drew off a clear serous fluid. In the right side over the area of altered breathing above that of tubular breathing a needle was inserted, and seemed to pass through a hard wall into a cavity, from which a large amount of grayish material like the sputum was obtained. The patient was transferred to the surgeons, who opened the pleura, but found no cavity. Two days later he died.

At autopsy there was found an enormous cavity in the lower right lobe, the cavity being bordered with a thick, firm, grayish mass, rapidly breaking down. Throughout the other lung there were nodules, and there were secondary growths in the liver.

Although the microscopic sections are not yet finished, the case is no doubt one of primary carcinoma of the lung, with metastases to the liver. There have been five examples here of secondary carcinoma of the lung, with more or less similar characteristics — pain, cough, expectoration bloody—but not characteristic in other respects, and on physical examination a characterstic picture very different to that presented by this patient.

To summarize, this case was apparently one of bronchiectasis, though one with a marked leucocytosis (25,000), a marked anemia (71 per cent.), and

a rapidly downward course out of all proportion to the signs. The rapid loss of weight and failure led to the thought of tuberculosis, but we did not think of new growth.

Dr. MacCallum showed the specimen that represented one-half of the lung in question. Even from a distance the large cavity could be seen bordered by reddish granulation tissue. The large bronchus to this portion of the lung was widely opened and communicated directly with the cavity, and the lymphatic apparatus showed the characteristic infiltration—the carcinomatous lymphangitis, which is not uncommon.

Carcinoma of the lung spring from, first, the bronchial epithelium, and second, from the alveolar epithelium. Most cases that have been described, however, come from the bronchial epithelium of the larger bronchi. The growths most frequently are of the cylindrical-celled type, though occasionally they are of the squamous type, and it is not clear how this form arises.

Carcinoma of the lungs, therefore, is generally carcinoma of the bronchi associated with the lymphangitis seen here, and we generally find an obstructed bronchus and bronchiectasis, though this here is hardly a true bronchiectasis.

Frequently there is a combination of carcinoma and tuberculosis, the former developing in the walls of the tuberculous cavity as in a carcinomatous ulcer elsewhere.

Report of Cases—Dr. Kelly. The following are a few interesting laboratory notes that I wish to put on record:

Case 1. This case was one of a fibroid operation, and possesses two points of considerable interest. The patient had fever, a bad discharge, and a badly-infected abdomen, from which the tumor had to be removed. The difficulties were obviated in the following manner:

After tying down on each side of the tumor in the general manner, the cervical portion was arrived at. Here the question was how to proceed, and the following was decided upon: The cervix was cut down and clamped off as in the case of an appendix. As the cervix was cut down to a stem the size of a finger the hemorrhage was controlled, and care was exercised not to open the cervical canal. This stem was then clamped and burned through with the Paquelin cautery, the lower stump held up, and the uterus removed without exposing any part of its cavity.

In cutting through the cervix there is really nothing to show when one is approaching the canal, but one must cut slowly and carefully until the neck of tissue is of the required size to be clamped and burned. In the future I shall repeat this operation, provided the tumor does not lie too far down toward the vagina.

Case 2 is that of a woman I saw two years ago. She had been treated for pain in the right side—some appendicular or pelvic condition. Nine years before she had had a child, instruments being required on account of a difficult labor. This was followed by abdominal pain, a temperature of 120°, and pain in the right side six months before I saw her. At that time I found a mass in the right cul-de-sac and a retroflexed uterus on vaginal examination. At operation the appendix was removed, as is a routine custom on opening the abdomen for any cause, and the uterus suspended.

In this case the pain continued, and at a subsequent examination the right ureter was felt through the vagina. Being pushed to make a diagnosis, I

thought to look in the bladder, as the pain continued, though this had been done before. On this examination I saw a peculiar sight, one I had never before seen. On the left side there was a normal ureteral orifice, but on the right there appeared a little teat of tissue about one and one-half centimeters in diameter at the base and about six millimeters in height, with little drops of urine falling into the bladder from the apex. While looking I saw the mass flatten out, then swell and become the size of a thimble, and cover the field of the speculum. A little, tiny slitlike ureteral orifice remained in its original position. The diagnosis was clear—a cyst with the vessels coursing over it.

A contraction of the ureter and pelvis above this caused a stricture of the mucous surface of the bladder, with an accumulation of urine behind and a pouching or bagging out of the structures. Previously this stricture of the mucous opening of the ureter had been seen only at autopsy.

The condition was just as easy to treat as to see. The alligator scissors were run in through the speculum and the slitlike orifice was made cruciform. Fifteen centimeters of urine ran out at once and were caught, and later 30 centimeters more, and the hydroureter and pelvis. caused probably by catarrh of the bladder, were relieved at once.

Case 3. A man, aged 42 years, was under treatment from June 10 till July 10, 1900. He complained of pain and soreness in the left side since 1879 following bowel trouble. Since that time he has had acid urine and bladder and ureteral pain.

At operation the kidney was exposed and rotated in the forceps, and a low grade of hydronephrosis was found, one that could not have been palpated through the side. The pelvis of the kidney was as large as the kidney itself. The cause was a question.

I examined very carefully down the ureter, and in the region of the congenital narrowing found a very narrow point two centimeters below the pelvis. This was not more than two millimeters in diameter. The question of what to do was an important one. Resection was too delicate surgery and will fail in many cases. So I made a slit in the pelvis, which was much thickened, and used a succession of bougies of silver and passed these through the strictured area, probably rupturing a portion of the wall structures. The recovery was perfect, and the patient has been well ever since.

Case 4. The two following cases are alike. They are cases of hydronephrosis, the first of a high grade—135 cubic centimeters. It is important to determine the amount of hydronephrosis in these cases, as by this means only can one determine those of low grade and those which are bilateral. The second patient had been treated for some time by New York physicians before coming here, where we removed her appendix, right tube and ovary, and shortened the ligaments. In addition we found 60 cubic centimeters hydronephrosis of one side and 30 cubic centimeters of the opposite; so there was a very distinct grade of this condition on the left side as well as on the right, and the question of what to do was a grave one.

In the case of this second patient both kidneys were to be suspended, of course, but would the operation be a success with the big, baggy pelves and valvelike orifices? We thought at first of taking out a piece of the pelvis, but this is very difficult to do practically, so we thought of this plan, and followed it successfully in both of the cases.

In both cases, though more marked in the large one, we found a web of tissue, very cellular, over the pelvis of the kidneys, and this could be used for holding sutures well. So with a series of sutures passed parallel to one another we plicated the pelvis of the kidney until it was puckered up into a little affair, which held firmly the anterior surface of the pelvis. The vessels held the posterior surface of the pelvis down to the desired size. The patients promptly recovered, with a normal capacity to the pelves.

In addition the kidneys were suspended by my usual operation, an important feature of which is the utilization of the rib or a point near it. A suture is carried around the rib and through the upper pole of the kidney, thus getting a lifting about one inch further than by any other operation.

The above are little but important points, well worthy of attention.

Exhibition of Neurological Case—Dr. Thomas. This patient, A. C., is interesting in several particulars. She came to the dispensary in February, 1905, and was at that time 31 years old, married. She complained at that time of inability to raise her eyebrows and of pain in the left side of her face. Her family and personal history are negative and unimportant, except that two years before coming to the dispensary she had a miscarriage. There are no data or etiological factors to be gotten.

July 4, eight months before coming to us, she noted, while eating, the left side of her face became stiff, and two days later there was intense pain all over the left side of her face. This pain was very severe, and persisted until her coming to us. In September, 1904, she had some difficulty in reading, which was helped by glasses. On December 4 she again noted some drooping of the lids, and again the eyes closed. At this time she went to the Eye and Ear Hospital, where she was treated with iodide of potassium until she came to us, and there was some improvement.

The examination at the time of her coming here showed a remarkable picture. Her head was held back and her forehead wrinkled, the eyelids covering the iris in almost its entirety. She could see only by holding the head far back. Her sense of smell was unaffected, and the eyes were normal as regards the optic nerves and vision. The left eye was fixed in the mid-position, and the right eye was deflected outwards to the right, and could be moved only a little up and down. The pupils were inactive to light and to accommodation. There was therefore on the left side a complete paralysis of the third, fourth and sixth nerves, and on the right of the third and fourth, the sixth only functioning. Further, there was atrophy of the masseter muscles, the mouth being deflected to the left, the left muscle not acting. All the other nerves were normal. There was anesthesia of practically the whole side of the face as is seen after the operation for trifacial neuralgia. This area was anesthetic to all qualities tested.

The patient was given mercurial inunctions and the potassium iodide was continued, and she began to improve immediately. The eye movements returned markedly in a few weeks, there being, however, pain in the left eye, and an ulcer of the left cornea appeared. Although treated by the best methods, the condition became worse, the eye was lost and removed one month after the ulcer appeared. Since that time the treatment has been continued, and the improvement has been good, though somewhat slow of late. At present the eye movements are perfect and the pupils react to light and accommodation. The pterygoids are weak on the left side, and the

masseter begins to show some action. In testing for sensation an interesting condition was found. With a sharp point there is present an area over the left forehead absolutely insensitive to all forms of sensation. This area extends down on the side of the face somewhat, but there is a band extending from the level of the tragus downward to the chin in which the patient feels some abnormal sensation—a tingling everywhere along this band which borders the anesthetic area. In this band the patient cannot appreciate slight touches (a fine platinum wire), but will feel the prick of a pin as a touch. In this area the patient cannot distinguish between one and two points of the compass, nor can any but the extremes of temperature be appreciated, ice being felt as cold and a very hot tube as warm, the stimulation with these causing the same diffuse tingling sensation in the banded area as any severe stimulus.

There are, then, two areas—first, anesthetic to all form of stimulation, and second, this bandlike area in which stimuli cause the diffuse radiating sensations. This remarkable radiation is also produced by stroking the area, although the touch is not appreciated.

Henry Head of London worked a number of years on the subject of changes in sensation after cutting nerves. He had two skin nerves of his arm cut and experimented on himself, finding after a certain time a region with exactly these same characterstics—fine touch not being appreciated, two points not being distinguished, nor hot and cold stimuli. In this same area, however, he could feel the prick of a pin, and ice and very hot tubes would cause this great sensory discharge. This area would surround the area of complete anesthesia. From this work he argues two distinct characteristics of the nerves—first, protopathic, which can appreciate extremes of stimuli, with a discharge of sensory impressions of a curious type, and second, epicritic, concerned with the higher sensation, with a faculty of greater localization and appreciation of finer stimuli. He also thinks there are two definite sensory nerves, as there is no relation between these areas found, and when the patient begins to recover it is by th area of anesthesia becoming smaller, and the whole area becomes like that of the protopathic sense before the epicritic returns. With a bruising of the nerve it is very different, as the whole area shrinks up coincidently.

The epicritic sense he finds never overlaps much—less than one finger breadth—while the protopathic sense overlaps tremendously. From this he argues the protopathic sense is distributed via the peripheral nerves and the epicritic sense via the posterior roots.

This work of Head's is very accurate, as he had a surgeon to take control of his work, and all was controlled by a physiologist. His plates show a great variability of the size of the area of complete anesthesia, while the line of demarcation of this other area seems to vary very little in his work on the branches of the ulnar nerve.

Dr. Barker said he was interested especially in the remarks about the epicritic and protopathic sense. He further said he had described the same sort of sensation in an article published in 1895. In this case the disturbance resulted from pressure of a cervical rib, the case being himself. The disturbed area extended from his axilla to the tip of his finger, and while in Leipsic he worked out the sensory disturbance at Von Fry's suggestion. Von Fry distinguishes the following sorts of sensation: First, warmth;

second, cold; third, touch, and fourth, pain, and holds nerves for each connected with certain points on the skin. Further, he held there were pain points in opposition to Goldscheider, and by using very fine needles he could produce only pain sensations in absence of any other.

In my arm we found this area of dissociation of sensations with the pain sense preserved. I worked for five months on my arm and mapped out every hot and cold point on both sides, which were transferred to a plaster cast. It is of interest to note there was overlapping of the hot and cold points, though the area had a straight margin. In this strip there is a disagreeable sensation of a diffuse, spreading type, and points cannot be localized. Likewise in this area temperature is not appreciated, but with a temperature above or below a certain point this disagreeable radiating sensation is produced. All stimuli produce this disagreeable radiating sensation—the pain sense of Von Fry.

MEETING HELD MARCH 5, 1906.

The Treatment of Fractures of the Neck of the Femur—Dr. Witman of New York. It is generally admitted the treatment of this condition is unsatisfactory, and the lack of technical interest shown in this subject is due to the quality of the injury rendering its treatment unsatisfactory. In the aged the anatomical arrangement makes it very unlikely that repair will take place, and in the young there is either shattering or the fracture is incomplete and does not readily unite.

Union is the standard of treatment at the hip, and deformity is expected, so that the treatment applied is termed perfunctory.

It is not true that fracture of the neck of the femur is an attribute of old age, many of the cases occurring in the young, and it must be borne in mind that there are fewer old people than there are young. It is also true that a large per cent. of the cases of coxa vara may be classed as traumatic. Neither is it true that the injury presumes external violence of extreme grade, as it may be very slight—a slip on the stairs. Also the injury may be incomplete, and if complete even it may not present the typical signs of fracture. While we must admit this fracture is much more common in old age, this fact is offset, as before mentioned, by the small number of old people as compared with the young. Hospitals receive the least favorable class of patients suffering with this injury, and these, in turn, receive the least favorable treatment—that of the young house officer—and the results are least good.

In young subjects suffering from this injury depression of the neck of the femur may cause a gradually-increasing deformity. It is important, therefore, to have the normal angle between the neck and the shaft of the bone as nearly as possible. The condition of impaction has the obvious advantage of immobility of the parts, allowing a more rapid and favorable reply and making it possible to restore normal function in some cases.

If the relation of the neck to the shaft of the femur be changed, the normal angle must be as nearly as possible restored to insure the best position and functional result. Impaction should be reduced, and this is best accomplished by making use of the leverage obtained by the relation of the trochanter and the pelvis. The limb is abducted against the resistance of its fellow of the opposite side, and when the outer part of the neck rests against the edge of the acetabulum the limb is encased in a plaster spica.

As there is great strain on this plaster, especially in the adult, a bar of iron is incorporated in the plaster in addition to strips of wood. In this manner the extreme abduction causes the trochanter and the neck of the femur to impinge upon the side of the pelvis and the acetabulum, the neck is lowered, and the shaft drawn upward by the muscles and rotated outward. This abduction causes a relaxation of the outer muscles and a tightening of the ileo-psoas, which draws the upper end of the fragment toward the separated neck and into the correct line. The relation of the neck fragment with the side of the pelvis prevents the upward displacement of this fragment, and this, in turn, tends to hold down the lower fragment. This gives the greatest possibility for union, and union in the best position.

Traction is a very proper and powerful form of treatment, but it is rarely relied upon or applied properly, the position of the patient rarely being correct. This picture I show illustrates this. There is great separation of the fragments, and the limb is in the adducted position, in spite of the odd 30 or 40 pounds weight used in this case. Complete abduction is necessary to tighten the capsule and the ileo-psoas muscle in order to draw the fragments together. Another point concerning the spica bandage I might mention in passing is the long form. Extending from the nipple line to the toes is the best, aid is just as comfortable as the shorter form if it is well applied.

Another decided advantage of the abduction treatment is the fact that even with no union the position of the fragments is such that the extension and abduction cause the trochanter to lie near the pelvis in the proper place for the application of a short leather spica support.

After union has been obtained the treatment must be continued to overcome the stiffness. This is done by massage, passive movement, and exercises, which will overcome the shortening of the muscles and the bad nutrition which has caused a condition resembling arthritis deformans. Pain and disability may persist for a long time after the fracture has united, even for months, and be largely due to the muscle spasm. Late pain in the knee, muscle spasm, and deformity may be a sequence of the intracapsular variety of fracture. This fracture occurs in two main forms—(a) depression of the neck as a whole, (b) partial separation of the epiphiseal junction—in the young. Perfect functional recovery after complete intracapsular fracture is not possible, though a successful union is obtained. The impacted form may be reduced with no danger to the patient and with a corresponding increase in the functional result. Complete fracture is more difficult to deal with, as perfect coaptation and immobilization are more difficult to obtain. Fair coaptation and practical treatment are not impossible with a good method and good assistance.

Dr. Halsted said he took exception to nothing Dr. Witman had said, and that he considered Dr. Witman had been most cautious and conservative. It was a pleasure to know that there were some few men who were making observations of methods for the best treatment of fractures, especially as we now have instruments of precision—the *x*-ray and various forms of measuring apparatus—by which we may control results.

Our own service is not an accident one, and so I have few cases to offer. However, I might say a few words on the history of the subject. In 1870 work was done along this same line at Bellevue, though, of course, not as scientifically. The younger men were especially interested in the use of

plaster, while the older men believed in the extension treatment. A tremendous amount of extension was used under ether and great force was applied. Abduction or adduction and their effects were not known.

One time a case of fracture of the necks of both femora came in, and one side was treated by Dr. Hamilton by the extension method and the other side by Dr. Bull by the plaster method. Finally, Dr. Hamilton was convinced his side treated by extension was the best, and he held a clinic on the case. Afterwards it was found the side he had claimed was the one treated not by himself, but by Dr. Bull with the plaster spica.

Among the operative methods that of Hansmann's is of interest, making use of a metal splint. Hansmann's original splint was of soft steel—long plates perforated by holes for the reception of screws. Some of the screws were very long, nine or ten inches, with a long shank that projected through the skin, thus allowing their removal when union had taken place. One end of the metal splint was likewise bent at a right angle and projected through the skin, and was removed after it had served its purpose. The inventor of this appliance had to give up surgery, as his hands would not stand bichloride, but this splint perpetuates his name. However, what is called the Hansmann splint today is not of the same design or metal as he used, but is of silver and is intended to be buried with the screws. This form was first used here in this hospital. The use of these plates is very satisfactory indeed, and in some 25 cases the metal still remains in place, it being necessary to remove it in only one or two cases where its presence under the skin was observed and annoyed nervous patients.

The Hansmann plate as used now is somewhat broad and at times as many as 15 centimeters long, and this presses against the periosteum and interferes with the circulation of the bone. It would be better to have something strong and small, and not resting on the periosteum throughout its whole length. A rod of small size bent at intervals to form right-angled pockets for screws would allow the small plates to obscure the circulation in very limited areas only, and the elevated-rod portions of the apparatus would allow the growth of normal tissue all about them.

Dr. Witman: In fracture of the neck of the femur I recommend no force at all in the treatment. It is an abduction treatment, and the only reason plaster is used in the majority of cases is that the plaster is handy and appliances are not. Likewise in the case of ununited fracture no force is to be used early, and if the case is a late one force is of no use.

The treatment of coxa vara is best by removing a wedge of bone, followed by the abduction treatment, which brings the surfaces at the ends of the fragments into contact and tends to restore the normal angle between the shaft and neck. The operative treatment of depressed fracture and coxa vara in the young is to be recommended, because unless the normal relations are established the functional result will be poor.

Some Observations on Coxa Vara.—Dr. Bloodgood showed a case of coxa vera with excellent use of the limb, a medium high shoe being the only appliance needed. The case had been operated on by an anterior incision six weeks following injury, and a separated fracture found. The leg had been put up in plaster in abduction, though no force had been used as recommended by Witman. In another case, that of a 10-year-old colored boy with a fracture of the neck of the femur, the leg was put up in plaster

in abduction, and the result had been a perfect apposition of the parts separated, with only a slight limp.

The records of the cases of fracture of the neck of the femur in the hospital show three groups: 1. Ununited—people crippled and mostly very old; 2. Union, but deformity, that of a traumatic coxa vera with adduction, outward rotation, and real shortening, quite a number of this group having to use crutches and suffering pain; 3. Quite a large group suffered no pain, but had to use a higher shoe on the injured side and walked with some limp. With Dr. Witman's method there will be union in just as many cases, but whether there will be union in more of the cases it is hard to say.

Owing to the non-appearance of a number of cases I had expected I will be unable to present the subject I had hoped to, but I will mention a few points in discussion of Dr. Witman's paper. There is an interesting point relating to union. König believes bone apposition will not be followed in a certain number of cases by bony union. He believes this depends on the amount of injury done the capsule, which injury will interfere with nutrition. With the cutting off of the blood supply by way of the capsule this supply must be depended on by way of the ligamentum teres, which is too little in amount to allow of rapid absorption of the clot. If the capsule is not torn and the fragments are brought into close relation, he claims there will always be union. In the bad group König advocates not bone suture, but suture of the capsule, thus restoring the injured circulation.

Dr. MacCallum said there was no ground for König's theory, as the rapid granulation formation would disprove this, and also disprove the point that the blood-clot absorption was so slow that senile changes would occur in the ends of the bones and prevent union.

Book Reviews.

SEX AND CHARACTER. By Otto Weininger. Authorized translation from the sixth German edition. 8vo, cloth extra, net $3. New York and London: G. P. Putnam's Sons. 1906.

In contrast with Nystrom's book this book of Weininger's is very well worth the attention of thoughtful people. Weininger asks us first to rid ourselves of the misconception that all living creatures are distinguishable clearly and unmistakably as males or females. The ideal man (wholly male) does not exist, but this necessary concept must be kept in mind, and is represented by the sign M. Similarly the concept of the ideal woman is represented by W. Since every individual springs from the union of two distinct and (theoretically) opposite plasmata, neither of these plasmata can ever be wholly lost in the individual. The typical man, therefore, combines male and female characteristics in a fairly definite way, and the typical woman combines female and male characteristics in a different but equally definite way. It is the task of science to define the position of any individual between the two points M and W.

Weininger conceives of protoplasm as varying between an ideal arrheno-

plasm (male plasm) and an ideal thelyplasm (female plasm), never actually reaching either extreme. Accordingly he looks for a variable sexual index in all the organs and tissues of the body.

The law of sexual attraction he states in this way: "For true sexual union a complete male (M) and a complete female (W) must come together, though in different cases the M elements and F elements are distributed between the two individuals in different proportions. The incomplete maleness of the man must be completed by the female, and the incomplete femaleness of the woman must be completed by the man."

Weininger says that he has worked out his law in many hundreds of cases. He made many special investigations, he says, with his male friends, whose proportion of femininity he was able to determine, and from them find the sexual formula of their ideals in the opposite sex. Weininger says that he was uniformly successful in this art, which he believes is so easy that anyone, with a little practice, might exercise it on any circle of friends. The practical application of his formulae would have been left by a more experienced author to those who came after him. Weininger only lived in this world 23 years.

Seventy-five pages of his book are well worth reading as a serious and intelligent attempt to understand some of the mysteries of sex. These 75 pages he called the "First or Preparatory Part." The remainder, the "Second or Principal Part," has little value except as it characterizes the brilliant, erratic, and, at last, crazy Jew who wrote the first part. His investigations of sexual formulae led him to the belief that the typical woman always occupies a position between the points M, which in this case means mother, and the point C, which means courtesan. "To put it bluntly," he says, "man possesses sexual organs; her sexual organs possess woman." "Woman is devoid of the desire for immortality." "The absence of the soul in woman." "The organic mendacity of woman." "The current opinion that woman is religious is equally erroneous." "Pairing is only possible because woman is not a monad, and has no sense of individuality; it is the endless striving of nothing to be something." "A woman is brought to a sense of her existence only by her husband or children—by these as subjects to whom she is the object—so obtaining the gift of an existence." These quotations show in part whither the formulae led him.

The next to the last chapter is entitled Judaism, and herein the author gives his theories logical application, finding the key to this riddle in the femaleness of the Jew. "The homology of Jew and woman becomes closer the further examination goes." Judaism seems to him a female tendency toward parasitism, and the Jewish question impossible to be settled except the Jew can free himself from "Jewishness"—excessive femaleness. His hope is in the "Jew who has overcome, the Jew who has become a Christian." "* * * the Jew who wishes for liberty within him. He will long to reach the holy baptism of the Spirit, of which that of the body is but the outward symbol."

Weininger himself became a Christian. There is no record of his later soul-wanderings, except that in 1903, when but little above 23 years of age, he shot himself dead.

MARYLAND MEDICAL JOURNAL.

JOHN S. FULTON, M.D., *Editor.*

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THOMAS R. BROWN, M.D. | HUGH H. YOUNG, M.D.
ROBERT REULING, M.D. | JOSE L. HIRSH, M.D.

BALTIMORE, JUNE, 1906

THE MEAT SCANDALS.

THE problem of milk supply has retired into a dark corner of the municipal consciousness, and meat inspection has become the engrossing topic. No very important results followed the carefully-prepared milk campaign, but the agitation about meat has borne fruit. It is possible, indeed, that the more recent agitation may, for a long time to come, wholly obscure the impression made by the milk campaign. There is no uncertainty about the popular verdict. The lesser of the two problems has been definitely chosen for immediate study, and those whose business it is to lead the public in such matters must be satisfied that the people have undertaken a task worth while, if not the task proposed. Efficient meat inspection is one of the important needs of Baltimore and of the State and of the United States, and the time to get this sort of public service is any moment when the people are ready for it. Our milk campaign was strictly local, but the agitation about meat is part of a national movement. Nothing new has been said, however, about the abuses in the meat trade anywhere in the United States. The President's investigating committee reported absolutely nothing that might not have been reported by hundreds of the curious visitors flocking to the Chicago stockyards day after day these many years. Thousands of persons, quite as competent as Messrs. Neil and Reynolds, and as free to testify, knew as much as they about the conditions of the packing-houses. A great many people in Baltimore, long before the present agitation began, knew what shocking things might be said about local conditions. Nor did the truth lack publicity, either here or elsewhere. The truth about Packingtown has been published repeatedly in this country, and a thorough investigation instituted by the London *Lancet* fully exposed the unsavory facts more than a year ago without in the least disturbing the British public or the American packers. Baltimore reporters, scouring the city for "'orrible an' disgustin' details," could find nothing which had not been told before in the daily press. The facts were not waiting for publicity, but the old stories when retold seemed to acquire significance, though not the kind of significance which the papers tried to impart. Reporters labored mightily on the proposition that disease and death travel always in the wake of these abuses, but not a tint of that sort could be made to adhere to the story. All the dangers to public health in all the abuses of the meat trade are to the

dangers of an uncontrolled milk supply about as a gallery rifle to a battery of machine guns. But the revelations about the meat trade are disgusting; they concern the acts and neglects of a rich and insolent organization which needs chastisement anyhow, and the people have taken the matter in hand.

THE PACKER'S IGNORANCE AND INEFFICIENCY.

"INCALCULABLE harm" has been done by the President to one of the greatest American industries. So says one of the inflated magnates, speaking at random like an uncoached "supe." "Crushing loss will fall on the stockmen," so they say, and perhaps it is true, for the predatory band which has not scrupled to oppress the people for the sake of gain will not hesitate to extinguish loss by oppressing the stockman. The publication of an inferior novel, its opportuneness to an alert President, and all the other stage business of the past few weeks were merely incidental. The crisis arrived, because the times were ripe—ripe to rottenness. The superior intelligence which is commonly attributed to "captains of industry," if it really existed, might have informed them long ago that the inevitable day was at hand, and that, with added days of immunity, penalties were multiplying. That superior intelligence, if it really existed, might even now inform them that the accumulated penalties, heavy as they seem, and sure to involve many outside the nefarious circle, are inadequate, and will not purge the guilt nor rehabilitate the fortunes of the packers. It is not the business of the President or of Congress or of the American people to know the technical requirements of the packing trade, and ignorance in these quarters is a venial sin. But the packers ought to be masters of their business, and their ignorance is of fatal tendency.

It is the ignorance of the packers which has been overtaken by the less ignorant public, and this ignorance will be punished again and again as often as the people overtake it. By making the few reforms demanded, and submitting to more stringent inspection, the packers can only bring themselves abreast of the times that are, and if they rest at that point will begin again to compound fresh penalties for times to come.

"There are no slaughter-houses in Chicago," said the *Lancet* correspondent 18 months ago, and it is true. "It is a very good thing that inspectors are appointed by the authorities at Washington, but it would be better still if they were first sent to Berlin to learn not only how a slaughter-house ought to be managed and constructed, but also to observe how those who have the honor to be entrusted with a public duty are more respected than business men, however rich." "The entire system of slaughtering is defective from beginning to end." "It is grossly inhuman." "It is absolutely unsanitary and dangerous, because there are no slaughter-houses in the technical sense of the term, and therefore the wholesome meats are exposed to the risk of contamination throughout the whole process of their preservation." "It is safer to buy meat from a small retail municipal slaughter-house in a petty provincial town (in Europe) than from the world-wide provision packers of Chicago." "There is but one remedy that will be effective throughout—the building of a public abattoir and the compulsory closure of all private slaughter-houses." These comments of a skilled

observer, published more than a year ago, and fully justified by recent investigations, seem to indicate that the country has barely entered on the trail of reform, having miles to travel in order to be abreast of civilized Europe. The packer may congratulate himself on the fact that the crash has come while the American public is but poorly informed on the sanitary aspects of the meat business. The most appropriate object for the American packer to contemplate at this moment is his ignorance and inefficiency. It is his distinction to be the most important, most ignorant, nastiest, and richest butcher in the civilized world.

THE PUBLIC RESPONSIBILITY.

Among those on whom the people's wrath fell are some just men who have always favored rigid inspection, and these naturally feel that the hue and cry is unjust because it is indiscriminate. It is indeed indiscriminate. It scores no credits for anyone But it is not unjust. Settlements will always be made in this rough-and-ready fashion, and heavy shocks can only be avoided by frequent settlements. There will always be differences of opinion between the packers and the public. Both sides want the benefit of every doubt. Neither side will play fair, and there is no well-informed disinterested party who can decide the questions. Let us take, for example, the question of hog cholera. A farmer whose stock is threatened or invaded with cholera ships his hogs to market as fast as possible. He believes that the interests of the market are adequately safeguarded by the official supervision and by the wits of the city butcher, and he expects to receive the market price for as many hogs as are sold. The buyer avails himself of every advantage afforded by his own and by official inspection up to the moment of sale and delivery

The new owner has no doubt about the value of inspection up to the instant of changing ownership. The animals are sent to the slaughter-house, and after slaughter several carcasses show evidence of fully-developed cholera. The skill and experience of the butcher do not come to bear on the post-mortem situation precisely as on the ante-mortem situation. Possibly the official inspector may be called in to decide on the disposal of such carcasses. That would be a very remarkable occurrence. A high sense of honor would be satisfied to let the spotted carcasses hang and take chances of their discovery among hundreds of carcasses. There is no positive impropriety in having such carcasses cut up and sent to the machine a little ahead of their turn. No man can say positively that the flesh of cholera-infected hogs is in any way injurious as human food. Very likely the people would define wholesome meat as the meat of animals in sound health, slaughtered, dressed, refrigerated, and prepared for market in a clean and sanitary manner. That would seem a sane and reasonable definition, but if no exceptions were admitted the world would go hungry. The people believe that all meat which is not good is bad. The packer believes that all meat which is not bad is good, and his practice is consistent with his belief. When the people go into the particulars of the business they may discover how many and how gross abuses may be justified by one or the other of these two statements, and they may learn how ill-prepared we are in this country to legislate intelligently on food problems.

Medical Items.

BALTIMORE.

Dr. Robert Hoffman will sail for Europe on July 4.

Dr. James Bordley, Jr., has removed his offices to the Professional Building, 330 North Charles street.

Dr. John C. Hemmeter has been elected an honorary member of the Imperial Society of Austrian Physicians.

Dr. John R. Winslow was elected a fellow of the American Laryngological Association at the annual meeting on May 31 at Niagara Falls.

Other Baltimoreans spending a vacation in Europe are Drs. John C. Hemmeter, J. Mason Hundley, Randolph Winslow, Thomas R. Brown and Henry Barton Jacobs.

The honorary degree of master of arts was conferred on Dr. G. Milton Linthicum by the faculty of St. Johns College, Annapolis, at the recent commencement.

Dr. Hugh Young sailed for Europe on June 20. Mrs. Young will join him in Paris, and they will make an automobile tour of France, England, and Scotland, returning to Baltimore in September.

Dr. Thomas L. Richardson, health warden for the Twelfth ward, has been appointed quarantine physician to succeed the late Dr. Sydney O. Heiskell. Dr. Richardson will assume his new duties on July 1.

Dr. Edwin J. Bernstein, recently of Baltimore, now of Kalamazoo, Mich., read a paper at the April meeting of the Kalamazoo Academy of Medicine on "Ear Conditions of Interest to the Family Doctor." The paper is published in the June number of the Michigan State Medical Society.

Dr. Sidney O. Heiskell, the quarantine physician for the port of Baltimore, died suddenly on Friday evening, June 22, on the lawn in front of his home at the quarantine station. The cause of his death is unknown. He was apparently in the best of health, and was chatting with his wife and his assistant, Dr. Thaddeus W. Clarke, when he became unconscious, and died in a few minutes. Dr. Heiskell was born in Washington in January, 1853. He studied medicine at the College of Physicians and Surgeons, where he graduated in 1881. Dr. Heiskell was appointed quarantine physician by William Pinkney Whyte, the mayor of Baltimore, now United States senator, and he held the position up to the time of his death, with the exception of four years' interval in Mayor Malster's administration. During this interval Dr. Heiskell became assistant surgeon in the United States navy, and served during the Spanish-American War, where he played an important part in the capture of Ponce. Dr. Heiskell was twice married. His second wife, Dr. Doralyn Bryan, was a physician. Their marriage occurred in June, 1900.

MARYLAND.

Sixty-seven Maryland physicians attended the meeting of the American Medical Association in Boston.

Dr. Charles A. Wells of Hyattsville received on May 29 a silver punch bowl as a testimonial of regard from his friends.

Dr. Harry S. Jarrett has resigned as physician to Eudowood Hospital at Towson, and has been succeeded by Dr. A. M. Forster of New Haven, Conn.

Dr. T. S. Cullen has resigned as gynecological surgeon to the Cambridge (Dorchester county) Hospital, and Dr. Guy L. Hunner has been appointed to succeed him.

Maryland physicians have a chance to give a needed lift to their unfortunate brothers in San Francisco. Committees appointed by the American Medical Association and the Association of American Physicians are working together to get up a library for the San Francisco medical profession. As is well known, the public and private libraries were all lost in the disaster. The committee's plan is to assist by every means possible in the formation of a new San Francisco County Medical Society. Every physician should feel called upon to assist in some way this undertaking. Dr. William S. Thayer, 406 Cathedral street, Baltimore, Md., is a member of the joint committee, and will be glad to acknowledge contributions of any sort.

GENERAL.

Congress is still wrangling over the food bill. There is nothing left to wrangle over. For 17 years Congress has been tinkering at food bills in such a way as to avoid hurting anybody, and has succeeded to admiration in not helping anybody.

The bill exempting grain alcohol from the

internal-revenue tax under the name of denatured alcohol has now become a law. This law provides a new material for use as fuel and as a power generator. Alcohol is said to be denatured when it has been deprived of its qualities as a beverage by the addition of any foreign substance which does not impair its usefulness for other purposes. The Internal Revenue Department must specify the substances which may be added.

The governor of New Jersey has vetoed the bill providing for the distribution of free antitoxin for the treatment of indigent cases of diphtheria. The governor's reasons for the veto were two, one good and one bad. The good reason is that it is the duty of the municipality, and not of the State, to provide this sort of relief. The other reason is that physicians should not be required to risk a loss of practice in indicating to the public authorities which of their patients are unable to pay for antitoxin.

Dr. Cressy L. Wilbur, for many years the chief of the Bureau of Vital Statistics for the State of Michigan, and more recently a special agent of the United States Census Bureau, has been appointed to succeed the late Mr. W. A. King as chief statistician of the United States Census Bureau. This is a very satisfactory appointment. One may here make note that Dr. Wilbur was not good enough for the political gang of Michigan now governing the State. He was removed about a year ago to make room for a political favorite, just as Dr. Henry B. Baker, the dean of American public-health executives, was removed from the secretaryship of the State Board of Health to make room for another political favorite.

Dr. Mary Putnam Jacobi, the wife of Dr. Abraham Jacobi, died at her home in New York on June 10 after an illness of several years. She was 63 years of age. She was the daughter of George P. Putnam, the founder of the well-known publishing house bearing that name, and was born in London in 1842. She graduated in pharmacy in New York, and entered the Woman's Medical College of Philadelphia in 1861. In 1866 she entered the Ecole de Medecine in Paris, where she graduated in 1871. She was the first woman ever admitted to that school. She won very prompt recognition from the profession in this country, and had a most honorable career both in practice and teaching. Her contributions to medical literature were many and noteworthy. In 1876 she won the Boylston Prize with an essay on "The Question of Rest for Women During Menstruation." She was one of the most distinguished women physicians of her time, and was for many years one of the redoubtable champions of woman suffrage.

The newly-elected officers of the American Medical Association are as follows:

President—Dr. Joseph D. Bryant, New York.

Vice-Presidents — Dr. Herbert L. Burrell, Boston; Dr. Andrew C. Smith, Portland, Ore.; Dr. E. S. Fairchild, Des Moines, Iowa; Dr. W. S. Foster, Pittsburg, Pa.

Treasurer—Dr. Frank Billings, Chicago, Ill.

Secretary — Dr. George H. Simmons, Chicago, Ill.

Resident Trustee — Dr. M. L. Harris, Chicago, Ill.

Trustees — Dr. W. H. Welch, Baltimore, Md.; Dr. Miles M. Porter, Fort Wayne, Ind.

The meeting place for the next annual session is Atlantic City, N. J.

The following officers were elected in the various sections:

Medicine—Chairman, Dr. Thomas H. Coleman of Augusta, Ga.; secretary, Dr. Joseph L. Miller of Chicago; delegate, Dr. Nathaniel B. Potter of New York.

Obstetrics and Diseases of Women—Chairman, Dr. J. Wesley Bovée of Washington, D. C.; vice-chairman, Dr. Edward Reynolds of Boston; secretary, Dr. W. P. Manton of Detroit; delegate, Dr. Walter B. Dorsett of St. Louis.

Hygiene and Sanitary Science — Chairman, Dr. Prince A. Morrow of New York city; secretary, Dr. Elmer E. Hegg of Seattle, Wash.; delegate, Dr. W. Lewis of Chicago.

Diseases of Children—Chairman, Dr. J. Ross Snyder of Birmingham, Ala.; secretary, Dr. George Wentworth of Chicago; delegate, Dr. T. W. Southworth of New York.

Pathology and Physiology—Chairman, Dr. W. L. Bierring of Iowa City, Iowa; secretary, Dr. W. B. Cannon of Boston; delegate, Dr. W. S. Hall of Chicago.

Laryngology and Otology—Chairman, Dr. S. M. Snow of Philadelphia; vice-chairman, Dr. Philip Hammond of Boston; secretary, Dr. W. Sohier Bryant of New York; delegate, Dr. Otto F. Freir of Chicago.

Ophthalmology—Chairman, Dr. G. C. Savage of Nashville, Tenn.; vice-chairman, Dr. A. A. Hubbell of Buffalo; secretary, Dr. A. E. Bulson, Jr., of Fort Wayne, Ind.; delegate, Dr. S. D. Risley of Philadelphia.

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A REPORT OF THE WOMEN'S VENEREAL DEPARTMENT OF THE JOHNS HOPKINS HOSPITAL DISPENSARY.

By Flora Pollack, M.D.

WERE the Women's Venereal Department dependent for its material upon prostitutes only there would be little need of its existence, as women of this class form so small a fraction of the population in the first place,* and, secondly, for the reason that this unfortunate class shuns publicity. At any rate, as the statistics will show, we have comparatively few of this class of patients at the clinics. Of 1098 patients—

125, or 11.3 per cent., were white single women.
281, or 25.5 per cent., were white married women.
40, or 3.6 per cent., were white widows or divorcees.
27, or 2.4 per cent., were white children under nine years.

473, total white.

216, or 19.2 per cent., were colored single women.
340, or 30.9 per cent., were colored married women.
16, or 1.4 per cent., were colored widows or divorcees.
53, or 4.8 per cent., were colored children under nine years.

625, total colored.

That means that about 36 per cent., or a little over a third, of the patients were responsible for their condition, and more than 60 per cent. were wives and children, nearly all innocent and mostly all ignorant victims of these diseases. The grave importance of these figures lies in the fact that 7.2 per cent. of the cases are very young children. Nine years is unusual, the common age being between two and four years of age. Though quite a number between the ages of 9 and 12 years are in the case-box, I do not call them children, as they are old enough to resist if they are hurt or to tell

* According to W. W. Sanger in his exhaustive book on "Prostitution in New York," he and others find that for seacost or other cities of a large floating population there is but one prostitute to every 16 men, the per cent. varying for different cities and at various seasson.

of the individual making the attack. I say this advisedly, as all of the children are the victims of the superstition common among the laity, colored as well as white, that a person having any of the venereal diseases can, by transferring it to another, get rid of it himself. The inoculation must preferably be on a virgin. If a virgin cannot be had, then any undiseased person will do. This superstition is, to my mind, the cause of rape by the colored man upon white women, and is also a cause of infection of the children who come to this dispensary.*

The question naturally arises, how did such a monstrous belief originate? From my work in this department I have learned that patients believe implicitly that if they have a child they give the child their disease, and they are rid of it. As they put it, "the baby will take the disease away from me." They know that while they are sick with the disease they have no children. They do not know that abortion after abortion results from the disease, but they do know that presently a child is born who has the disease or very soon develops it, and afterwards they are better. Hence they argue from effect to cause; they have a child, therefore they are better, and not to the true reason, that *because* they are better they have a child. They know the child is diseased, and they believe it has taken the disease away from the parent. Now, what is more virginal than a baby? Therefore the belief that if the infection can be transferred to a virgin the better the chance for cure; but if not, then to any undiseased person. The laity in this regard make no distinction between lues and gonorrhea. They have come to me with the request for a baby, with the sole object in view of giving their disease to their hapless offspring, for they think they can get rid of gonorrhea as well as lues in this way. I have been asked "whether the sufferer could not so get rid of her gonorrhea, or even transmit it to an adult sexually, or extragenitally, any way, only to get rid of it."

The spread of the diseases from this cause alone calls for immediate action by the medical profession, sociologists (who are well aware of this fact), and the legal profession. I have been to the courts in the interest of some babies, but they were usually too young to make intelligent statements, or, if old enough, too intimidated to make them; so that in but one case has the guilty individual been made harmless for a short period.

The only hope for relief for this evil lies, of course, in education, teaching the fallacy of this belief; but until we reach this happy era vigorous prosecution of the offender offers one, though a difficult, solution. For the unfortunate wife and mother there seems very little hope.

Registration or any legalized form of prostitution will never help, and I am unalterably opposed to it, as it leads to espionage and petty persecutions without in the least checking the trouble, unless the infected men, too, are brought under control.

*See the article by Abraham S. Wollarst, M.D., in the A. M. A. Journal, Sept. 28, 1901, page 830, on this subject, and especially the discussion by Dr. A. C. Cotton of Chicago, with reference to this phase of it.

As gonorrhea and syphilis are communicable as well as preventable diseases, they should be notifiable diseases, not as a punishment for the guilty, but solely as a protection for the innocent. France, thus far, is ahead of any other country in that in her courts a woman, whether a prostitute or a betrayed woman I do not know, recovered damages from the man who infected her; and another woman, whose case was then on trial, had to prove that the man who had infected her knew he had the disease at the time he gave it to her. If she could prove that, she would win the suit. I have not yet read the result in this case, but it seemed to me that that might be one way of making people realize their responsibility. Certainly, the people who attack helpless children should be summarily dealt with. The Munich courts have condemned to five months' imprisonment a postoffice employe who had established intimate intercourse with a chambermaid of good character, although he knew he was suffering with a venereal disease.

This is a long digression, but in its bearing upon the prophylactice treatment of these disastrous diseases I find sufficient excuse.

GONORRHEAL CASES.

Of 1098 patients treated at the Johns Hopkins Hospital Dispensary, Women's Venereal Department, 670 came for gonorrhea or its complications. Of these, 289 had more or less grave complications, excluding urethritis or cystitis. There were—

Seventy-eight cases of Bartholin's abscess, 11.3 per cent.

One hundred and seventeen cases of pelvic inflammation, 17.5 per cent.*

Thirty-one cases of pus tubes, 4.6 per cent.

One child had ischio-rectal abscess.

One had a gonorrheal stomatitis.

Eight children developed peritonitis.

Six cases, or 1 per cent., had arthritis. This is probably too low, but the patients who do develop it usually do not come to this department, either being unable to walk, if it is in the lower extremities, or going to the medical or surgical sides whenever arthritis develops.

Forty-eight, or about 7.5 per cent., had bubo, *i. e.*, a gland which suppurated, or was so large as to be one of the causes which brought the patient to the dispensary.

It is interesting to note how very rare gonorrheal ophthalmia is in the adult, only one case occurring, so far as I know, in this number, and that an eight-year-old girl who was referred to me by Dr. Mills for vaginitis, the ophthalmia being at that time quite well. The one great factor, so far as I can judge, which tends to make the newborn so susceptible and the adult so immune, is, I think, to be found in the lachrymal secretion, which the newborn do not develop for from three weeks to three months after birth. I know it is not the absence of organisms which protects the adult, for all of the children (who as far as the eye is concerned are adults) cry

*See paper by Rufus B. Heall, M.D., Cincinnati, O., A. M. A. Journal, Feb. 15, 1902, on "Neisser Infections in Private Cases."

and rub their secretion-covered hands into their eyes, and yet but one has contracted ophthalmia.

As there seemed to be a difference in the opinions of various authors as to the involvement of the female urethra in gonorrhea, I studied the cases with this end in view both subjectively and bacteriologically, though no cultural experiments were made. Each case was examined for the gonococcus, and it was found that out of 688 cases in which a record of this was made (for I examined the luetic as well as the purely gonorrheal cases for it)—

Four hundred and sixty-six, or 68 per cent., had urethritis.

One hundred and seventy-three, or 25.1 per cent., had no symptoms.

Thirty-eight, or 5.9 per cent., developed urethritis from two to eight years after.

One developed urethritis first.

One had a urethritis only, and never had vaginitis, or at least not so long as she was under observation.

The next point which seemed of great importance was the identity of the organisms. In this study there was, unfortunately, not always a note made of the organisms which were found. If they happened not to contain the typical form, they were considered negative, so that I am limited to 515 cases, in which—

Three hundred and sixty-one, or nearly 70.1 per cent., showed the typical organism.

One hundred and fifty-four, or 29.9 per cent., were atypical, *i. e.*, there were cocci, usually very tiny diplococci, which may or may not decolorize by Gramm, but the important point is that in 25, or nearly 16¼ per cent., of these atypical cases complications identical with those of true gonorrhea developed. Now, the important bearing this has upon the subject relates not so much to the therapeutic treatment as to prophylactic measures.

Shall we, from purely sentimental reasons, shield the individual at the expense of the community? This is what we are doing when we assume that because the organisms vary in certain particulars therefore gonorrhea is not present and isolation is not necessary. This, then, brings up the vexed question, How long is gonorrhea contagious? Unfortunately, it is impossible to answer this positively, nor have we any means of testing it except by inoculations. The experiments of Wertheim proved that the organisms may be harmless to the host two years after the acute attack, and even cultures on artificial media were harmless to him, but when run through another individual and then reinoculated into the host he developed an acute attack. It is also definitely known that patients do recover absolutely, but we also know that immunity is rarely established.

There is a form of immunity which I call relative, and which can be divided into personal immunity, the immunity the individual establishes for himself or herself for his own organism, and the conjugal immunity, the mutual immunity between husband and wife, which is certainly established in a comparatively short time. It was my rule to prohibit the marital relation between man and

wife until both were free from symptoms. In one case it was six months, and there was no trace in either of irritation or discharge; but after the first exposure both had an intensely acute relapse, so that now I interdict the marital relation only so long as there are acute symptoms, and with better results.

The treatment depends upon the location as well as complications. For the discharge silver nitrate in 5 per cent. solutions to the vagina and urethra is very satisfactory. It may or may not be supplemented by home treatment, as the women are often too poor or too ignorant, or both, to do it efficaciously at home; yet I find that for the discharge alone it is admirable if applied often enough to control the discharge, *e. g.*, every day, every other day, etc.

Unfortunately, the commonest complication is also the most difficult to relieve, *i. e.*, pelvic inflammation *which does not go on to pus formation;* and as this complication develops in 20 per cent. of all the cases, we can readily estimate the amount of suffering, the tragedies, thus brought into the homes of the poor. It means one disabled woman out of every five who visit this dispensary. We may not even promise relief from pain by operation, for the adhesions recur, and with them the suffering. Pus cases do better usually from operation, but only 4.6 per cent. develop pus tubes as compared to 17.5 per cent. that have the adhesions without actual pus formation. These can be relieved at times by free purgation and counter-irritation applied to the vaginal fornices, with the slight depletion obtained from the glycerine which is used. Though the relief is often great, it is of very short duration and requires frequent visits, besides giving up heavy work, which very few of the patients can afford to do for long.

Bartholin's abscesses, suburethral abscesses (of which we had but one), ischio-rectal abscesses (three), all yielded kindly to treatment. The incisions must be large, especially in Bartholin's abscess, and here the incision of the capsule must be as large as the one through the mucosa in order that the packing may be continued long enough to prevent union of the cut surfaces; otherwise the abscess recurs.

SYPHILITIC CASES.

There were 247 cases of secondary lues, 2 of luetic keratitis; 1 of tabes, 3 of tertiary lues (stricture of the rectum), 2 gummata; 6 mucous patches, 31 condylomata, 46 primary sores, of which 3 were of the lip, 1 in the cervix, 1 in the vaginal fornix, 4 of the excavating or phagedenic type; 1 of luetic elephantiasis of both labia minora, 30 soft sores or chancroids, 12 venereal warts, 11 gonorrheal vegetations, 12 pregnancies complicated by lues, 14 pregnancies complicated by gonorrhea, of which 3 aborted. In his fascinating book, "Social Diseases and Marriage," Prince A. Morrow, M.D., calls attention to the frequency of abortion due to gonorrhea.

In a subsequent compilation of 239 cases there were again 8 per cent. children, 19 per cent. pelvic inflammation and pus tubes, 18, or nearly 9 per cent., Bartholin's abscess; 2 of ischio-rectal abscess, 1 suburethral abscess, 6 of arthritis, 4 of gonorrheal warts, 1 of

these in a nine-year-old white child; 3 of tertiary lues, 2 of whom had stricture of the rectum; 1 tertiary atresia of the vagina.

In this series I found 119 had gonorrhea only, 20 lues only, 100 having luetic as well as gonorrheal infections.

In the treatment of all cases the figures show that 33 per cent. of patients pay but one visit. In a period of seven years the average number of visits has been three. The largest number paid by one patient was 49 visits. As this work was done last year, and that patient still comes, her average would run up higher by this time, and between these extremes every gradation is found.

It seems almost impossible to impress upon patients the importance of treatment, and treatment continued until they are *well* as compared to their being better. Symptoms, as a rule, yield so readily to treatment that they belie the physician's statement to the contrary, and until their recurrence patients believe that we exaggerate when we warn them of remote possibilities, and even when they do return, and the symptoms again quickly subside, patients cannot realize until too late the care they owe themselves as well as to others.

As to the occupations of the patients, we find the domestic occupations in the lead, as would be expected. The exhibit offers an interesting survey of the field of occupations for women. Married as well as single are represented, colored and white. We find that of six teachers, all single women, two were white and four colored: 6 teachers, 2 actresses, 12 schoolgirls, 2 dancers, 4 salesladies, 4 milliners, 6 tailoresses, 1 telephone girl, 1 stenographer, 2 clerks, 2 spoolers, 2 factory girls, 2 scrub women, 1 tobaccomaker, 1 tack packer, 1 machine operator, 2 cigar rollers, 2 candymakers, 1 lady's maid, 1 cleaning and pressing, 1 cigarette packer, 1 fruit packer, 1 press feeder, 1 noveltymaker, 1 oyster-cap maker, 1 cigarmaker, 1 glass packer, 1 packing-house, 1 canmaker, 54 seamstresses, 41 laundresses, 47 cooks, 12 nursery maids, 5 waitresses, 316 chambermaids.

Of the thousand or more patients who make up these statistics, 544 contribute to the support of their families or support themselves. Indeed, many of those who are not included in this table support or help to support their families, but, being married, their occupation was not inquired into at the time, so that when it was needed for this report it was unobtainable.

One hundred and eight are married and their occupations are given.

Four hundred and ninety-two are married, but their occupations, if they help to support the family, are not given. The vast majority do contribute to the family support. The important bearing this has upon the subject is that not only is the homemaker disabled for her mission, but the bread-winner, too, is incapacitated, adding the ravages of poverty to the disorganization of the home.

I have gone much more into the economic study of this subject just now than into the therapeutic, the purely medical, because that side of it appeals most to me, as I daily meet the resulting tragedies, and I am free to admit I feel so helpless in it all.

Current Literature.

REVIEW IN MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

BACTERIOLOGY OF THE BLOOD IN TYPHOID FEVER.

Hirsh, Quillen, and Levy (*Journal of the American Medical Association,* June 23, 1906) give the result of their examinations of the blood in 100 cases of typhoid fever as regards the presence of the typhoid bacilli. They give a condensed but very satisfactory review of the work that has previously been done on this subject, giving 34 references of such work from the literature. They discuss the presence of bacilli in the stools and the fact that typhoid bacilli are usually found widely distributed after death, the presence of typhoid bacilli in the fetus, and at some length the presence of these bacilli in the urine, calling attention to the fact that it is a late occurrence, and that it is usually found in from 25 to 30 per cent. of the cases. They deprecate the attempt to obtain typhoid bacilli from the spleen *intravitam* because of the danger of hemorrhage, but call attention to the numerous cases in which bacilli have been isolated from the rose spots.

Gaffky in 1884 called attention to the probability of the invasion of the blood by the typhoid bacillus, while shortly afterwards Frankel and Simmonds isolated the organism in one out of six cases. Thiemach first realized the fact that the cause of failure was due to the insufficient dilution of the blood, the serum having a marked bactericidal action. Cole was the first to isolate the organism from the blood in this country, obtaining it in 11 out of 15 cases. Hirsh, Quillen, and Levy's experiments were carried on at the University of Maryland Hospital, following the technique of Cole, that is, "the skin over the anterior surface of the arm at the bend of the elbow was thoroughly cleansed with soap and hot water, then washed with alcohol and ether, and kept wrapped in a hot towel soaked in bichloride solution for several hours. A bandage is fixed about the arm just below the shoulder so as to make the veins stand out prominently. The operation consists in drawing 10 c. c. of blood from one of the superficial veins of the arm. An ordinary hypodermic needle with a syringe holding 10 c. c. is used. Needless to say, all aseptic precautions must be used. The 10 c. c. of blood obtained is then divided into four flasks, each flask containing 300 c. c. bouillon. The flasks are then placed in the thermostat and allowed to incubate from 24 to 36 hours."

The results of this admirable piece of work are as follows:

1. That the bacillus typhosus is present in the circulating blood in every case of typhoid fever at some time during its course.

2. The bacilli invade the blood very early in the disease.

3. The bacilli usually disappear from the blood by the end of the third week.

4. Relapse is associated with the reinvasion of the blood by the organism.

5. The bacteriological examination of the blood is a valuable adjunct in the diagnosis of obscure cases of typhoid fever.

* * *

ANTITYPHOID SERUM.

Chantemesse (*La Presse Médicale,* 1906, No. 16) gives the results of his use of the antityphoid serum during the past five years. He compares the mortality in his own service with the mortality in the various hospitals in Paris, the only difference in the treatment in the two sets of cases being the administration of antityphoid serum in his series. From the first of April, 1901, to the 31st of December, 1905, the mortality in the other hospitals was 17.3 per 100, while in his service it was but 3.7 per 100. Certainly the immense disproportion between these figures is striking, and suggests at the very least that the use of this serum should be continued. Brunon and Josias have obtained results almost identical to those of Chantemesse, using the same serum which he employed.

As to the mortality in typhoid fever, an article of interest has recently appeared by Barjon (*Lyon Médicale,* 1906, Nos. 9, 15, 16). He has collected the mortality statistics mainly from the Hotel Dieu at Lyons, dividing his statistics into three classes—first, from 1865 to 1869, before the use of the cold bath; second, the period of the introduction of the Brand method, 1880 to 1888, and third, from 1894 to 1900. The average mortality of the first series was 26.6 per 100, the second series 6.88 per 100, and the third series 14.39 per 100. There are two striking things in these figures—first, the striking diminution of mortality during the early years of the Brand treatment, and second, the marked increase in mortality during recent years. Barjon explains this by the extreme care used when the Brand treatment was inaugurated, the patients being given the baths at the proper intervals and at the proper temperature under the supervision either of the physicians themselves or of capable nurses, while he thinks that in recent years the Brand treatment has not been carried out rigorously, due to the fact that the work has been mainly relegated to orderlies and to unskilled attendants, who give baths at too high temperature, due to sympathy with the patient, or who register too low tempera-

tures so that they will not be obliged to give the baths. Courmont and Jusserand report a series of cases with the same results, and agree with Barjon as to the cause of the increased mortality in typhoid fever. The subject is one of such practical importance that it should invite the attention of all physicians, especially those in hospital practice.

* * *

PERINEPHRITIC ABSCESS.

Guiteras (*New York Medical Journal,* January 27, 1906) has written a long and very interesting article on the etiology, diagnosis, and treatment of perinephritic abscess. He calls attention to the fact that the condition was well recognized by Hippocrates, who said "as soon as the swelling has appeared in the region of the kidney one should incise it down to the kidneys." Guiteras does not believe that primary perinephritic abscess is possible, and thinks that all cases result from the extension of infection from the kidney or from other neighboring organs or tissues. Albarran says that in half the cases the etiology of perinephritic abscess is not known, and that in the other half the underlying cause is some kidney lesion, while in Küster's tables 59 out of 230 cases were due to kidney lesions. Guiteras, from personal experience, believes that nearly all of the cases are due to renal disease, and that those due to disease of the other organs are rare, and not, properly speaking, perinephritic abscesses. He reports briefly 15 cases, in all of which suppuration was referable to various renal conditions, such as calculus, tuberculosis, pyonephrosis, and ascending pyelonephritis. Küster found that most of the cases occurred between the ages of 20 and 25, and it is twice as frequent in men as in women. As regards diagnosis, Guiteras calls attention to the fact that the diagnosis of perinephritic abscess *per se* does not usually present serious difficulties, but the discovery of the source of the abscess is often difficult and many times impossible. He discusses then the general and local symptoms of the condition, the course of the disease, and the differential diagnosis. Küster found rupture in places other than the loin in 34 out of 234 cases, in 18 of which the rupture was into the pleura and bronchi, in 11 into the intestine. Guiteras next discusses the operative treatment of this disease, and of his series in seven nephrotomy was done and in four nephrectomy, and of these three died—one of shock, one of uremia, and one of sepsis. If operation is not performed, the abscess will discharge externally or internally, or the patient will die of sepsis, or, rarely, the pus will be absorbed. The conclusions of this admirable article of Guiteras are as follows:

1. Many more cases of perinephritic abscess are due to suppurative renal disease than is generally supposed—a fact which will be proved with the rapid strides that are now being made in renal surgery.

2. Traumatism, exposure, and similar influences to which primary perinephritis is attributed are not so important as many ob-

servers have claimed. They are often vaguely given as causes when they are simply coincidences or the active causes of rupture of already existing abscesses in the kidney or neighboring structures.

3. It is important, though difficult, to determine the source and course of the pus. Therefore, before the operation pus should be looked for in the common urine and the separate urine by the ureteral catheter. During the operation the surgeon should try to determine whether the kidney is the source, and if not, what tissue or organ is. It is equally as important to discover the road taken by the pus, as it indicates where a counter-opening should be made and the further treatment of the case for complications.

The elements of success in operations for perinephritic abscess may be summed up as follows:

(a) Early incision and evacuation before the pus has had time to burrow extensively.

(b) Thorough exploration without timidity, opening the kidney, and exploring the ureter if need be.

(c) Thorough drainage down to the deepest part of the sac by means of large, soft rubber drains or gauze, the drain being kept in place until a well-formed sinus exists down to the deepest part of the cavity.

(d) Nephrotomy, nephrostomy, or nephrectomy should be performed if indicated at the time of the operation or later.

* * *

THE VISCOSITY OF THE BLOOD.

Bence (*Zeit. f. klin. Med.*, Vol. LVIII, p. 203), after giving a brief review of the work done on the viscosity of the blood, takes up at considerable length, first, the viscosity of the blood in disturbances in the elimination of carbon dioxide and the effect of oxygen inhalations in these conditions, and second, the viscosity of the blood in nephritis. He gives a great number of observations in each of these conditions, and then discusses the influence of nourishment upon the blood's viscosity, giving in detail the results of numerous observations and experiments in cases of diets rich in proteids, rich in fats, and rich in carbohydrates, respectively. Briefly stated, Bence's conclusions are as follows: The viscosity of the blood rises and falls with its carbon dioxide content, this relationship being due to the effect of the carbon dioxide on the volume and surface of the red-blood corpuscles. This relationship between the viscosity of blood and its carbon dioxide content can be shown in the circulating blood. Oxygen inhalations in certain cases diminish the viscosity of the blood, since they favor the elimination of carbon dioxide. Thus in certain cases of cardiac insufficiency oxygen inhalations may prove of value. The blood of nephritics, and usually in all probability also in uremia, has less viscosity than normal blood. The explanation of this is to be sought in the increased hydremia. Bence was unable to demonstrate the relationship between diet and viscosity.

PROCEEDINGS

OF THE

MEDICAL AND CHIRURGICAL FACULTY

OF MARYLAND

Editorial and Publishing Committee.

ALEXIUS MCGLANNAN, M.D. J. A. CHATARD, M.D. JOHN RUHRAH, M.D.

Secretaries of the County Societies are earnestly requested to send reports of meetings and all items of personal mention and of local or general interest for publication addressed to Dr. Alexius McGlannan, 847 North Eutaw Street, Baltimore.

SPECIAL ANNOUNCEMENT.

THE Semiannual Meeting of the Medical and Chirurgical Faculty will be held at Annapolis September 27 and 28. Headquarters at Carvel Hall, where special rates have been secured.

The scientific sessions will be held in the Senate Chamber of the Statehouse. An interesting program, both socially and scientifically, has been arranged, a synopsis of which is as follows:

Thursday, 11 A. M.—Addresses of welcome by J. D. P. Douw, Mayor of Annapolis; Dr. H. B. Gantt, President of the Anne Arundel County Medical Society; Hon. E. B. Warfield, Governor of Maryland; several papers of scientific interest.

For the afternoon and evening the Anne Arundel County Medical Society has arranged an elaborate social function, briefly: (a) Inspection of the Naval Academy buildings; (b) Concert by the Academy Band; (c) Regatta by the Severn Boat Club; (d) Launch parties; (e) Oyster roast; (f) Dance and concert by the Academy Orchestra, which will terminate a day that should be pleasing and entertaining to the members and their wives.

Friday, 28th.—Scientific session.

An oration by a physician of national reputation on a subject of vital interest to the profession, to be followed by short scientific papers. In the afternoon a trip down the bay has been arranged on a government vessel.

Excursion rates have been secured on the Pennsylvania and Baltimore & Ohio railroads. A special car will take the members and their friends from Baltimore for $1 round trip on the Annapolis Short Line, leaving at 10.15 A. M. from Camden Station, returning Friday at 5.15 P. M., or those desiring to go by water may leave Friday morning, returning the same evening, for 75 cents round trip. There will be a Ladies' Auxiliary Reception Committee to look after the welfare of the ladies who desire to take this trip. It is hoped that the members will look upon this Semiannual Meeting as a time to become better acquainted with one another and help make the meeting a grand success. Bring your wives and enjoy the two days' recreation before starting the winter's work. The total cost to each city member will not be over $5.

Those desiring additional information concerning the meeting should write to either member of the Committee on Scientific Work and Arrangements.

A. P. HERRING, Chairman.
G. M. LINTHICUM.
J. RUHRAH.

COUNTY SOCIETY MEETINGS.

The Garrett County Medical Society held a meeting on June 19 at Oakland and elected the following officers for the ensuing year:

President—H. W. McComas.

Vice-President—M. C. Hinebaugh.

Secretary—J. G. Selby.

Delegate—J. E. Legge.

Censors—A. J. Mason and J. W. Laughlin.

The price of life-insurance examination was fixed at $5 for all old-line companies, to which agreement all the members of the profession in the county will strictly adhere.

The next meeting will be held in September.

The Howard County Medical Society held a very interesting meeting on July 3 at the Howard House, Ellicott City. A large number of members were present, and an excellent paper was read by Dr. C. J. Clarke of Sykesville on "The Diagnosis of Insanity."

A meeting of the Allegany County Medical Society was held at Will's Mountain Sanitarium, Cumberland, July 3, at 3 P. M. The following program was carried out:

Regular order of business.

Report of the delegate to the annual meeting of the State society.

Reading and discussing of papers:

"Gynecology from the standpoint of the family doctor," Dr. Henry D. Fry, Washington, D. C.

"Pathology and treatment of facial paralysis caused by exposure to cold," Dr. H. O. Reik, Baltimore, Md.

"Personal opinions on the treatment of typhoid with reference to hemorrhage and perforation," Dr. S. A. Boucher, Barton, Md.

Dr. Thomas W. Koon of Cumberland was admitted to membership.

The ladies accompanying members were invited to spend the afternoon at the Sanitarium.

The Anne Arundel County Medical Society was entertained by Dr. Thomas H. Brayshaw at a social session at his beautiful home, "Bachelor's Joy," Anne Arundel county, Maryland, June 21, 1906.

The members assembled at 1.30 o'clock. After a sumptuous repast, which had been prepared by the host, Dr. Brayshaw, the meeting was called to order by the President, Dr. Harry B. Gantt, who gave an address of welcome to the members of the Medical and Chirurgical Faculty who were present. Dr. Brayshaw, the host, gave another address of welcome, after which papers were read by Drs. Watson, Browne, Hirshberg, Earle, Herring and Linthicum of Baltimore, and F. H. Thompson of Annapolis.

The following were present: Drs. W. T. Watson, R. T. Johnson, Charles G. Hill, G. M. Linthicum, A. P. Herring, L. K. Hirshberg, B. B. Browne, Jr., S. T. Earle, Bird and Bowen of Baltimore,

T. O. Walton, W. C. Claude, F. H. Thompson, J. J. Murphy, J. O. Purvis and L. B. Henkel, Jr., of Annapolis, H. B. Gantt of Millersville, Billingslea of Armiger, and T. H. Brayshaw of Glen Burnie.

A SPECIAL meeting of the Anne Arundel County Medical Society was held at the parlors of the Maryland Hotel, Annapolis, Md., at 11 o'clock on the morning of July 10, 1906.

After routine business Dr. C. R. Winterson gave a talk on enterocolitis in children and its treatment.

The following new members were elected: Drs. C. R. Hammond of Jessops and W. H. Hopkins of Annapolis.

Drs. Murphy, Thompson, and L. B. Henkel, Jr., were appointed a reception committee for the reception of the Medical and Chirurgical Faculty at its Semiannual Meeting, after which the society adjourned.

REPORTS OF OFFICERS AND COMMITTEES PRESENTED TO THE HOUSE OF DELEGATES AT THE ANNUAL MEETING OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, APRIL 24-26, 1906.

REPORT OF THE SECRETARY.

OWING to the absence of the Secretary from the city a complete report was not made at the Annual Meeting, but the facts were presented at that time. It has been thought advisable to make a note here of the work of the Secretary's office.

During the past year the office of the Treasurer and Secretary were united in order to effect certain changes in the financial management of the Faculty with as little friction as possible and to facilitate the adjusting of the finances of the component societies and the Faculty. This arrangement proved highly satisfactory, and owing to the hearty co-operation of the county society officials all the changes planned were carried out. These changes consisted in getting every account between the members of the component societies and the societies themselves and the Faculty adjusted, and a complete record of the financial standing of every member noted on the card index. A second change effected was the enforcing of the new fiscal year, *i. e.,* running the accounts on the calendar year instead of on the old April to April basis. In connection with this the collecting of accounts in advance in accordance with the provisions made in the Constitution was put in force.

At the time the treasury was turned over in April, 1905, there was a deficit of several hundred dollars and a debt of $1000. On the first of January, 1906, all the outstanding indebtedness had been paid and there was a balance of $265.95 in the treasury. By April, at the time the treasurership was transferred to Dr. Gardner, all cur-

rent expenses had been met and there was a balance of $1513.44. This, of course, consisted in the money received from dues paid in advance, and will have to be used for the running expenses of the current year. It is safe to assert, however, that the finances of the Faculty are in better condition than they have been at any time in recent years, if not since the organization of the society.

The Treasurer's report was published in detail just after the first of the year, and there is no need to reprint it at this time, but it should be added that another feature inaugurated was the system of monthly statements made to the Council, in which all receipts and expenditures were detailed.

The amount of work accomplished in the Secretary's office is much larger than most members have any idea, and it may not be out of place to make a brief statement of what has been done. The Secretary has kept in touch with all the county societies by means of continual correspondence, and in some cases the work of the county officers has been aided from the central office. A certain amount of material has been added to the biographical index of the members, but this work has been delayed owing to the work done on the new directory of the American Medical Association, the Maryland portion of which was furnished very largely from the Secretary's office. A duplicate card catalogue of the members of the entire State is kept at Chicago in the office of the American Medical Association, and this is corrected by your Secretary every month.

A scrapbook of the lay press reports about the medical profession has been kept since the first of January, and this has taken a considerable amount of time. Every item about doctors in the local newspapers, especially members of the Medical and Chirurgical Faculty, is clipped and pasted in a scrapbook, which is kept on the Library table for the benefit of the members. The Secretary hopes to make a study of this and a more complete report on the physician and the lay press in Baltimore.

The work of keeping up the organization has gone steadily on, and many members have taken a very active part—too many to admit of mentioning all. Among the most earnest workers have been Dr. Earle, who visited 15 county societies, and the following members, who each visited several: Drs. Woods, Gichner, Rowland, Harlan, Gardner, Taylor, Allan, and the Secretary.

The State may be said to be very well organized at this time. There is an active county society in every county except St. Mary's, and steps are now being taken to organize a society there. Charles county was organized just before the Annual Meeting, and Harford, which had been rather poorly organized, was rejuvenated and is now in good condition. Quite a number of the county societies are very active and have a splendid organization; a few are still in need of misionary work, and all will be made better by a constant interchange of visits, papers, and views. An effort will be made during the coming year to have as many of the societies visited as possible, and the Secretary would urge that the societies send representatives from one meeting to another.

The Secretary's office is now so organized that the standing of every member in the State can be ascertained in a very few moments, and it is desired that as close touch be kept with the component societies as is possible. We invite correspondence on any topic which may be interesting or perplexing the component societies or their members.

The Secretary desires to convey his thanks to the Librarian, Miss Noyes, and also to Miss Fort, who has acted as assistant to both Librarian and Secretary. On these two the brunt of the labor of the office has fallen, and it has been looked after in a most satisfactory manner.

The following is a detailed account of the membership:

	Owe $1.50—1905.	Owe $2—1906.	Membership.
Allegany county			29
Anne Arundel "		6	22
Baltimore "		26	51
Calvert "			9
Caroline "	3	8	8
Carroll "		5	29
Cecil "		5	22
Charles "	Just organized.		10
Dorchester "		2	14
Frederick "	2	4	51
Garrett "		5	7
Harford "			8
Howard "		1	18
Kent "		2	7
Montgomery "			22
Prince George's "	4	6	18
Queen Anne's "			10
St. Mary's "	Organization not effectual.		
Somerset "			15
Talbot "	8	5	13
Washington "			34
Wicomico "	7	11	11
Worcester "		9	12
		Total	420
Baltimore City M. S.	16	91	497
Faculty total			917

JOHN RUHRAH,
Secretary-Treasurer.

REPORT OF THE BOARD OF TRUSTEES.

Mr. President:

During the year a great deal of the usual duties of the Trustees has been done by other intelligent and efficient officers. According to rule adopted two years since, the senior member, Dr. G. Lane Taneyhill, was appointed the delegate to this body.

In accordance with Chapter II, Section 2, they respectfully submit the following: The value of the buildings as being $15,000, with an insurance on the same of $12,000; the value of the library $45,000, and the portraits $5000, with an insurance covering both at $18,000. There is at present no indebtedness on the buildings. Among the repairs have been the following: A new roof on the hall, costing $130. It is safe and durable, being of slag. The painting of the front entrance, supplying new shades and awnings for the lower windows, cost about $60.

Your Board recommends that house fire-extinguishers be placed in the main hall and on each floor of the Library, as at present our property is not protected in any manner from fire that may originate inside the buildings; and also recommends that the hall be refrescoed. The greatest necessity that confronts this Faculty is a new fireproof building. Respectfully submitted,

G. LANE TANEYHILL, M.D.,
Chairman.

REPORT OF THE COUNCIL.

THE Council has held 10 meetings during the year. Men should be chosen for this important business who can regularly attend. On several occasions, though the Council meets only once a month, it has been impossible to obtain a quorum. At an early meeting the MARYLAND MEDICAL JOURNAL was accepted as the official organ of the Faculty. This appears to be unsatisfactory, as will be shown by Dr. Reik.

The Council and the Board of Medical Examiners, with a special Committee on New Medical Law, gave a great deal of time to consideration and formulation of a new medical law, but, in spite of labor expended, the Council thought nothing could be done at the last session of the Legislature, and therefore advised its withdrawal.

The interest on the Baker Fund was appropriated for the purchase of books.

Repairs as necessary have been authorized and done. The Council decided to assume the payment of salaries from the general fund and to give the Library Committee the amount necessary for journal subscriptions, binding and library supplies.

ROBERT W. JOHNSON, M.D.,
Chairman.

LIBRARY COMMITTEE.

The Library Committee of the Medical and Chirurgical Faculty of Maryland respectfully submits the following report:

The report of the Librarian, Miss Noyes, covers so fully the work of the past year that little can be added to it. Attention should be called to the fact that the only funds available for the purchase of new books are those provided by the Book and Journal Club and the Frick Fund. As has been often pointed out, the annual dues of the Faculty are very far below the average of other cities, and for this reason every effort should be employed to keep up the Book and Journal Club membership, and if possible to increase it. Attention is also called to the good work done by the Library in furnishing books and journals of which we have duplicates to other libraries. It has become necessary, owing to the increasing use of the Library, to utilize the front, or reading, room for an office. The back room is entirely too dark for the Librarian and the Assistant Librarian to work there satisfactorily, and if they worked in one of the upstairs rooms it would necessitate the employing of another assistant, an expense that the Committee does not feel warranted in incurring. The use of the reading-room as an office of necessity disturbs the readers, and it is very desirable that some other arrangement should be made. Our Library is now a very valuable one, and it is most obvious that we are sadly in need of more room and a safer building. With the furnace in the basement surrounded with inflammable material, the danger of fire is imminent. It is to be hoped that the enthusiasm manifested a year ago for a new building will not subside until this desirable object is accomplished.

Following is the Librarian's report for the year:

LIBRARIAN'S REPORT.

Mr. Chairman and Members of the Library Committee:

For the greater part of the past fiscal year no new books were purchased, as neither the Book and Journal Club nor the Frick Library Funds received their customary donations for 1905, and we are absolutely dependent on these two funds. The appropriation for the Library from the Faculty funds does not include anything for books, but allows $300 for subscription to journals, $300 for binding and $100 for supplies. The salaries are now paid from the general fund.

Since January, 1906, the Frick Library has received $450, and the Book and Journal Club has purchased a few books on subjects not supplied from the Frick Fund, as well as sustaining its journal subscription list of $300. We have also received the accumulated interest, $220, on the amount bequeathed by Miss E. Baker for the purchase of books on materia medica and therapeutics in memory of her father, Dr. Samuel Baker. Several books have been ordered from these funds which have not been received to date.

Four of the medical schools continue to contribute $25 each toward our Library fund, and the Council set apart $100 for the purchase of the *Jahrbuch für Kinderheilkunde,* as this set is not in any public library in the city.

Large numbers of books have been donated by physicians. Some of these were duplicates, but many were new books of great working value. From among the duplicates we have begun reserve files of some of the more valuable journals. These duplicate sets will be kept as reference, so that the journals may be always available, as members are frequently seriously inconvenienced by finding the volume desired has been loaned from the Library.

Several hundred duplicate volumes have been sent to other libraries, two of the recipients being the University of Maryland and the College of Physicians and Surgeons in our own city.

Four of the medical schools now have libraries of their own, and these supply their students with most of the necessary literature. This has made a great difference in the number of readers and of the books loaned at this Library. Those making use of the books in the reading-room this past year number 4164, and there were 1246 books borrowed for home use.

Books have been borrowed for the use of our members from the Library of the Surgeon-General's Office at Washington, and books from this collection have been loaned to physicians in Philadelphia, Boston, and Grand Rapids, Mich.

There are 15,275 volumes in the library, exclusive of duplicates, including 4964 bound journals. The gifts for the year are listed below:

Books—Association of Medical Librarians, 7; Baker Fund, 11; Dr. H. M. Baxley, 4; Bibliothek de l'Universite Royale de Norwege, 2; Book and Journal Club, 7; Dr. T. R. Brown, 4; Dr. W. L. Chapman, 1; College of Physicians and Surgeons, 1; Dr. S. T. Earle, 10; Dr. G. M. Edebohls, 1; Enoch Pratt Free Library, 15; Dr. J. D. Fiske, 1; Dr. H. M. Fitzhugh, 12; Frick Library, 50; Dr. H. Friedenwald, 1; Dr. J. Friedenwald, 5; Dr. J. S. Fulton, 11; Dr C. B. Gamble, 66; Dr. Daniel C. Gilman, 1; Dr. Geo. M. Gould, 1; Dr. J. H. Hartman, 79; Dr. J. C. Hemmeter, 1; Dr A. P. Herring, 1; Dr. Wm. H. Howell, 1; Dr. Henry M. Hurd, 6; Dr. W. W. Keen, 1; Dr. P. Kintzing, 1; Library Committee Fund, 7; Dr. W. D. MacCallum, 9; Dr. C. C. McDowell, 2; Dr. C. K. Mills, 1; Dr. C. O'Donovan, 65; Dr. Wm. Osler, 123; Dr S. Paton, 1; Dr. H. O. Reik, 4; Dr. John Ruhräh, 3; Dr. Wm. Simon, 1; Dr. W. S. Thayer, 12; Dr. S. Theobald, 3; Dr. H. M. Thomas, 58; Mr. D. H. Thomas, 1; Dr. L. McL. Tiffany, 32; Transactions and Reports of Societies, 67; Dr. E. L. Trudeau, 1; Mrs. Voight, 10; War Department, Surgeon-General's Office, 1; Dr. W. H. Welch, 95; Dr. J. W. Williams, 7; by binding journals, 200; total, 1014.

Reprints and Monographs—Dr. W. S. Bainbridge, 1; Dr. L. F. Barker, 1; Dr. W. S. Bryant, 17; Dr. J. A. Chatard, 1; Dr. S. S. Cohen, 7; Dr. E. F. Cordell, 3; Dr. A. W. Fairbanks, 4; Dr. J. C. L. Fish, 1; Dr. H. Friedenwald, 19; Grossh. Universitäts-Bibliothek, Heidelberg, 31; Dr Daniel C. Gilman, 4; Dr. H. O. Hall, 3;

Dr. A. P. Herring, 7; Dr. Wm. L. Howard, 7; Dr. G. Hudson-Makuen, 4; Dr. Reid Hunt, 1; Königliche Universitäts-Bibliothek, Göttingen, 32; Köngl. Universitäts-Bibliothek, Upsala, 16; Imperatorskij Jurjevski Universitäts-Bibliothek, 8; Dr. H. B. Jacobs, 4; Dr. Geo. Ben Johnson, 6; Dr. R. H. Johnson, 12; Dr. C. K. Mills, 4; Dr. Wm. Osler, 15; Dr. V. M. Reichard, 1; Dr. H. O. Reik, 1; Dr. H. Richardson, 13; Dr. J. M. Slemons, 1; Dr. H. L. Smith, 1; Dr. W. R. Steiner, 3; Dr. J. M. Swan, 5; Dr. S. Theobald, 1; Dr. E. L. Trudeau, 4; Dr. C. H. Von Klein, 1; Dr. H. Wakefield, 8; Dr. R. Winslow, 1; total, 248.

Miscellaneous Journals, etc.—Dr. J. Abercrombie, Dr. J. F. Chisolm, Dr. T. S. Cullen, Enoch Pratt Free Library, Dr. J. M. T. Finney, Dr. J. H. Hartman, Dr. J. D. Neff, Dr. G. B. Reynolds, Dr. H. Richardson, Dr. H. L. Smith, Dr. W. S. Thayer, Dr. S. Theobald, Dr. L. McL. Tiffany, Dr. J. R. Winslow.

Of the 162 journals on file in the reading-room, 14 are donated through the Association of Medical Librarians, 53 by the Book and Journal Club, 29 by exchange, 1 by Dr. J. C. Hemmeter, 57 by subscription of Library Committee, 1 by Dr. G. J. Preston, 1 by Dr. J. Ruhräh, 2 by the University of Maryland, 4 by Dr. J. W. Williams.

Arrangements have been made with the Library of Congress by which this Library will receive printed catalogue cards for all medical books published in the United States. These cards will be used as an order list, and as the books are added to our collection the printed cards for same will be transferred to our card catalogue.

Petty Cash Fund.

Receipts.

Balance brought forward April 15, 1905		$45 27
Fines on books overdue		40 54
Sale of duplicates, etc		34 00
Total receipts		$123 81

Expenses.

Assistance	21 50	
Drayage	10 30	
Express	10 00	
Encyclopedia Britannica	30 00	
Newspapers	4 53	
Cleaning, etc	6 75	
Incidentals	6 20	
Total		89 28
Balance		$34 53

Respectfully submitted,

Marcia C. Noyes,
Librarian.

Geo. J. Preston, Chairman.
H. B. Jacobs.
J. M. H. Rowland.
J. W. Williams.
S. Paton.

REPORT OF MEMOIR COMMITTEE.

Baltimore, Md., April 24, 1906.

Members of the House of Delegates:

Gentlemen:—The Faculty has lost by death since its last annual meeting ten of its members, and your committee begs leave to submit the following report:

ROBERT EVANS BROMWELL, M.D.,

graduated from the University of Maryland, Medical Department, in 1850, and took a post-graduate course in 1851. He died near Port Deposit, Md., after a lingering illness, March 22, 1906, at the age of 79.

JACOB W. DUBOIS, M.D.,

graduated from Bellevue Hospital Medical College, New York City, in 1865, and died at his home, in Millersville, of heart disease, February 19, 1906, at the age of 70.

WILLIAM F. FORIEN, M.D.,

graduated from the Baltimore Medical College in 1899, and died in Baltimore November, 1905, after an illness of six months.

THOMAS WARFIELD SIMMONS, M.D.,

was born in Frederick county, Md., June 16, 1836. He obtained his literary education at Landon Academy, and studied medicine at the Jefferson Medical College of Philadelphia, from which he graduated in 1861. His father was Maj. James Simmons, one of the Old Defenders of Baltimore in the war of 1812, and an officer of the American forces on Loudenslager's Hill, at the battle of North Point.

Dr. Simmons married Miss Florence Bryan, of Hagerstown. For four years he was health officer for Washington county, and during that period he instituted and established the present health ordinances of Hagerstown. He invented an extension splint for fractures of the lower extremities and a gold needle for the prevention of lockjaw from punctured wounds. He was one of the original members of the Medical Society of Washington County and its president in 1894. He was active in the affairs of the community in which he lived, as shown by the facts that he was president of the Cearfoss Turnpike Company and director of the Waynesboro Turnpike Company and of the Second National Bank. He was a member of St. John's Church. He was a diligent and conscientious worker in his profession, and secured the love, honor and respect of all classes of the community. The Faculty can ill afford to lose such members from its ranks.

He died at Hagerstown, after an illness of five days, of intestinal obstruction, December 30, 1905, at the age of 69.

Your committee adopted the following resolutions and sent a copy of them to the family of Dr. Simmons:

The members of the Medical and Chirurgical Faculty of Maryland have learned with deep sorrow and regret of the death of their fellow-member, THOMAS WARFIELD SIMMONS, M.D., of Hagerstown, Md., and they have adopted the following:

Resolved 1st, That in the death of Dr. SIMMONS this Faculty has lost a valued member and one whose influence was for the upbuilding of the Faculty and the community in which he lived.

Resolved 2d, That we honor him for the painstaking and conscientious professional life he led and the high and ennobling influences he was permitted to exert upon those with whom he came in contact.

Resolved 3d, That the good work he was able to accomplish in the community in which he lived in establishing the health ordinances of Hagerstown, and in other ways outside of his profession, is worthy of our highest praise.

Resolved 4th, That a copy of these resolutions be sent to the family of the deceased and a copy be recorded in our minutes for permanent preservation.

JOSEPH VEAZEY WALLACE, M.D.,

was born in Cincinnati, Ohio, May 14, 1830. He obtained his literary education at Elkton Academy, and his medical education from the University of Maryland, where he graduated in 1853. He married Miss Cornelia C. Price of Chesapeake City. He was devoted to his profession, which he practiced in and about Chesapeake City for more than half a century. He was beloved and highly esteemed by all who knew him. He enjoyed a large obstetrical practice, in which he was eminently successful. He was descended from a long and distinguished line of colonial ancestry. His great-grandfather, his grandfather and his father held commissions in the federal service, and such are still in the possession of the family and were on exhibition at the centennial of the Faculty in 1899. He was president of the Cecil County Medical Society, 1902-1903; member of the Board of Examiners for Pensions at Elkton, and member of the Sons of the Revolution.

He died of senile dementia and complications at Lewes, Del., November 15, 1905, at the age of 75.

Your committee adopted the following and sent a copy to the family of Dr. Wallace:

The members of the Medical and Chirurgical Faculty of Maryland have learned with feelings of deep sorrow of the death of JOSEPH VEAZEY WALLACE, M.D., of Chesapeake City, Md., president of the Cecil County Medical Society, and have adopted the following:

Resolved 1st, That in the death of Dr. WALLACE this Faculty has lost a valued fellow-member and one who, by his work in the Cecil County Society, has aided the extension of the work of the Faculty in that county.

Resolved 2d, That he was a good, honest and safe practitioner, and that the work he was able to accomplish by a long life of professional activity is worthy of our highest commendation.

Resolved 3d, That in the zeal and devotion to his profession and in the conscientious discharge of his duties his memory will ever be an inspiration to those who knew him.

Resolved 4th, That a copy of these resolutions be sent to the family of the deceased and a record made of them in our minutes.

PETER HENRY REICHE, M.D.,

was born in Lippstaat, Germany, May 18, 1837. He attended college at Soest, and came to America at the age of 16. He studied medicine at the University of Maryland, from which institution he was graduated in 1868. He married Miss Emily F. Duvall. He was a true physician, giving his

services to all who called upon him, and his work amongst the poor of the community in which he lived was freely and cheerfully given. He enjoyed a large practice, and was held in high esteem by all who knew him. He was a member of the American Medical Association, of the Chemical Society and of the Academy of Medicine of Baltimore. In the latter organization he took a very active interest. He was a Christian gentleman, a member of St. John's Episcopal Church at Waverly. He was a charter member of the Waverly Lodge of Masons, a member of the Royal Arcanum, of the Order of the Golden Chain and of the Knights of Honor.

He was struck by an electric car on the York road near his home, and died within an hour at the City Hospital without regaining consciousness. His death occurred December 10, 1905, at 12.30 A. M.

Your committee adopted the following and sent a copy to the family of Dr. Reiche:

It is with feelings of the deepest sorrow that the Medical and Chirurgical Faculty of Maryland has learned of the death of PETER HENRY REICHE, M.D., and the following have been adopted:

Resolved 1st, That in the death of Dr. REICHE this Faculty has lost a valued fellow-member and the community in which he lived a safe, honest and able physician.

Resolved 2d, That his works of charity are to be especially commended. He was the true physician, going about seeking to find out where he could do the most good.

Resolved 3d, That in his devotion to the loftiest aims in his profession he has left us an example to be followed. He was a hard and diligent student and kept himself well abreast of the times, so that his patients always received the best attention.

Resolved 4th, That a copy of these resolutions be sent to the family of Dr. REICHE and spread upon our minutes for permanent record.

CHARLES CARROLL SHIPPEN, M.D.,

was born in Philadelphia on October 29, 1856. He obtained his collegiate education at Harvard University, where he graduated with the degree of A.B. in 1877. He received his medical education at the University of Maryland, and obtained his degree from there in 1880.

Dr. Shippen spent most of his life in Baltimore, where he was well known. He was a man of high ideals. His sterling honesty of purpose and unswerving devotion to the right in small things as well as in great have commended him to us, and if his life had more imitators it would be the better for the world. He will be best known and remembered for his connection with the charitable work of the city. He labored hard and unceasingly for the best interests of the suffering poor amongst us. At the time of his death he was a member of the board of managers of the Charity Organization Society and of the Instructive Visiting Nurses' Association.

After a year's sickness he died in Baltimore, November 6, 1905, at the age of 49.

The following resolutions were adopted and sent to the family of Dr. Shippen:

The Medical and Chirurgical Faculty of Maryland, having learned of the

death of CHARLES C. SHIPPEN, A.B., M.D., a member of this body, have adopted the following:

Resolved 1st, That in the death of Dr. SHIPPEN this Faculty has lost a valued member and an associate of sterling worth.

Resolved 2d, That his lofty purposes, high resolves and sterling character are to be commended, and that in these regards he set an example to his fellow-members worthy of the highest praise.

Resolved 3d, That we honor and respect him for the good and efficient work he was able to do in helping to organize and establish the city's work among the poor.

Resolved 4th. That a copy of these resolutions be spread upon our minutes for permanent record and a copy sent to the family of Dr. SHIPPEN.

GEORGE WARNER MILTENBERGER, M.D.,

was born in Baltimore, March 17, 1819. He received his early education at Dr. Boisseau's Academy. He entered the University of Virginia and was a student there during the sessions of 1835 and 1836. In the autumn of 1836 he entered the Medical Department of the University of Maryland, and graduated from that institution in 1840. His father was Gen. Felix Anthony Wyber Miltenberger, who entered as a private in the war of 1812 and soon reached the rank of brigadier-general. During the Bank of Maryland riot, in 1814, General Miltenberger was president of the First Branch of the City Council, and for a time exercised the duties of mayor.

In 1850 Dr. Miltenberger married Miss Sarah Elizabeth Williams of Mobile, Ala. Soon after his graduation he was elected demonstrator of anatomy in the University of Maryland, and in 1847 he was elected professor of pathological anatomy. At this time he had a large private class, and the students were greatly attached to him. In 1849 he was appointed one of the attending physicians at the Baltimore City and County Almshouse. In 1852 he succeeded Prof. Samuel Chew as professor of materia medica and pathology. In 1855 he was chosen dean, and soon after was made treasurer of the Faculty and Infirmary. In 1858 he was elected to the chair of obstetrics. In 1889 he offered his resignation, but it was refused. He renewed it in 1890, and he withdrew after 50 years' active professional service. He served as president of the Obstetrical Society, 1885-1886, and as president of the Medical and Chirurgical Faculty of Maryland, 1886-1887. In 1886 he was appointed a consulting physician to the Johns Hopkins Hospital. Amongst his published works may be noted: "Version or High Forceps," "Puerperal Eclampsia," "The Etiology of Puerperal Fever."

Dr. Miltenberger was an eminent physician and teacher, he was untiring in his devotion to his profession in all its departments, he loved his profession for its own sake, and the fact that he was able creditably to teach nearly all the various branches of medicine at the University of Maryland shows the wide range of his abilities. He was an ideal practitioner as well as teacher, and by his gentle manners, persuasive ways and ability to inspire confidence he secured the love, respect and devotion of all who put themselves under his care. He enjoyed an exceptionally large practice, and was constantly looked to by his fellow-practitioners to help them unravel difficult problems. His judgment was sound and his medical knowledge

great. That he was held in high esteem by his fellow-practitioners was evidenced by the presentation of his portrait to the State Faculty in 1896, on which occasion Professor Chew said: "You are here, sir, an honored teacher among your pupils; a father among your children."

He died in Baltimore December 11, 1905, of troubles incident to his age, at the age of 87. Though sick for some time, he bore all his disabilities with patience and fortitude.

Your committee prepared the following and sent it to the family of Dr. Miltenberger:

The Medical and Chirurgical Faculty of Maryland, having learned of the death of its fellow-member and ex-president, GEORGE WARNER MILTENBERGER, M.D., and desiring to place on record their high regard for him as a man, a physician and a teacher, have adopted the following:

Resolved 1st, That in the death of Dr. MILTENBERGER the Faculty has lost one of its most valued members and one of its most influential ex-presidents, the medical profession a man of scholarly attainments, one who had the welfare of his profession as to its highest ideals at heart, a trusted friend and a genial companion, the City of Baltimore a citizen who through a long and laborious life has left an example of manly activity, zeal and honor which it would be well for all to emulate.

Resolved 2d, That as a teacher in one of the foremost medical schools in this country for a period of nearly 50 years he displayed marked ability, and he devoted himself so unreservedly to medicine in all its branches that he was able to fill with credit all the chairs of the school. He was an interesting as well as an instructive teacher, and his genial manners and desire to promote in every way in his power the advancement of his students made him almost an idol with his classes. Throughout the country there are hundreds of medical men today who are doing valiant work owing to the inspiration received from him during their student years.

Resolved 3d, That he was a physician in the truest and loftiest meaning of that word. He carried with him into his daily life the highest ideals of medicine. He labored for the best interests of those who put themselves under his care, and all the sick felt, when brought into contact with him, that a master mind was dealing with their condition. He was a physician who inspired the love and affection of his patients, and the confidence he aroused when in the sickroom gave him great power over his patients.

Resolved 4th, That he has shown by his long life work that by a strict adherence to duty and by following only those paths which lead to the highest and loftiest aspirations a man may be eminently successful.

Resolved 5th, That a copy of these resolutions be sent to the family of Dr. MILTENBERGER, that they be spread upon our minutes for permanent record, and that they be sent to the *Hospital Bulletin* of the University of Maryland for publication.

CHARLES H. TILGHMAN, M.D.,

was born in Baltimore, January 6, 1846. His education was obtained at private schools in and around Baltimore. He received his medical diploma from the University of Maryland in 1866, and he became a member of this Faculty in 1897. He was resident physician at Bayview Asylum in 1867; was assistant surgeon in the French Ambulance Corps during the Franco-

Prussian War, and was decorated by the Bavarian government with "Order of Military Merit." In 1873 he retired from the practice of his profession. He always took a lively interest in medicine, as evidenced by the retention of his membership in this Faculty. He had a very logical mind and an excellent judgment. He was a type of the gentleman of the old school. He died in Baltimore of angina pectoris April 25, 1906.

Whereas it has pleased a Wise Providence to remove from our midst our fellow-member, CHARLES H. TILGHMAN, therefore be it

Resolved 1st, That this Faculty most deeply deplores the loss it has sustained in the death of Dr. TILGHMAN.

Resolved 2d, That Dr. TILGHMAN has set an example which it would be well for all medical men not engaged in the practice of their profession to follow, in retaining his membership in this body.

Resolved 3d, That this city and State at large has lost a noble, fair-minded and conscientious citizen.

Resolved 4th, That a copy of these resolutions be sent to the family of Dr. TILGHMAN and a record made of them upon our minutes.

NORMAN BRUCE SCOTT, M.D.,

was born in Bruceville, Md., in 1819. He was a direct descendant of Robert Bruce of Scotland through his mother, who was Miss Elizabeth Bruce. His mother was a first cousin of Francis Scott Key. His grandfather was Norman Bruce, the founder of Bruceville, Carroll county, Maryland. His granduncle was Dr. Upton Scott of Annapolis, and the first president of this Faculty. Dr. Scott received his early education at Brooke's Academy, at St. John's College, Annapolis, at Pennsylvania College and at University of Pennsylvania. In 1844 he graduated in medicine from the University of New York, and in May of that year he located in Hagerstown, where he lived all the rest of his life. He joined this Faculty in 1890. He married Miss Catherine McPherson, daughter of Mr. John B. McPherson, a prominent banker of Gettysburg, Pa. Dr. Scott enjoyed a large practice and was highly esteemed as a physician and surgeon. After the battles of Gettysburg and Antietam he served in the hospitals of Hagerstown. One of the first of the series of meetings which were inaugurated by the Faculty to be held outside of the city was held at Hagerstown, and on that occasion Dr. Scott entertained the members most handsomely. Dr. Scott retired from practice in 1894, and lived quietly at his home until his death from old age, September 21, 1905, at the age of 87 years. Dr. Scott was a well-rounded man and took an active interest in the affairs of the community in which he lived, medical, social and political. He was the first president of the Washington County Medical Society; he was a Republican, and took an active interest in the work of that party; his social qualities were such as to endear him very greatly to all who knew him; he was for a number of years president of the Rose Hill Cemetery Company; he was always kind and courteous, a true gentleman. An editorial in one of the papers published in the city where he spent most of his life says: "His loss is a matter of sincere regret, for with him has passed away a living monument and example to all men of a high-minded gentleman whose head was whitened by years passed in active intercourse with men and affairs and whose life was without a flaw."

The Medical and Chirurgical Faculty, having learned of the death of their fellow-member, Dr. NORMAN B. SCOTT, desire to make a minute of his life and character and of their high regard for him.

In the death of Dr. SCOTT this Faculty has lost one from among its members whom it can illy spare, as he was an example of that which is best in human nature, and as a gentle, courteous man, a painstaking and conscientious physician and a man of power and influence in his community he had few equals. He practiced his profession in a way that showed his love for it. He did many acts of kindness and charity during his professional career of which the world knows nothing, and he was governed by the highest and loftiest ideals in all that he undertook; he was a man of strong personality, positive and exact and loyal in the extreme; he was just such a type of manhood that this and all other bodies need, but he was especially needed and valued by this Faculty to give it power and strength outside the city; he was a power for good in his profession, and it will keenly feel his loss; he was dearly beloved and highly esteemed and respected by his professional brethren and all who were fortunate enough to come in contact with him.

This Faculty extends to his family and the community in which he lived and labored for so many years its sincerest sympathy in the great loss they, in common with the Faculty, have sustained.

JOSEPH T. SMITH, Chairman;
FRANK D. SANGER,
HUGH H. YOUNG,
PHILIP BRISCOE,
E. L. WHITNEY,
Committee.

REPORT OF THE COMMITTEE ON PUBLIC POLICY AND LEGISLATION.

INASMUCH as it was decided at a special meeting of the Faculty to recommend no changes in the existing Medical-Practice Act, no matters of a legislative character required the action of the Committee on Public Policy and Legislation.

Two bills were introduced in the recent session of the Legislature which, if enacted into law, would have seriously impaired the efficiency of the present Medical-Practice Act. These measures were, however, readily defeated in the Committee through the efforts of the President and other members of the Faculty.

Efforts to secure a pure-food law and the proper labeling of proprietary medicines and nostrums in accordance with the principles now generally advocated by the medical profession failed of passage.

The most important medical legislation enacted at the recent session of the Legislature was that for the establishment of a State Tuberculosis Sanatorium. The interest of the State in the subject was further shown by the appropriation for the Hospital for Consumptives at Towson and the Eudowood Sanatorium.

Members of your Committee were also active in their support of the Child-Labor Law, which is of medical as well as economic interest.

WILLIAM H. WELCH, *Chairman.*

REPORT OF THE COMMITTEE FOR FUND FOR THE RELIEF OF WIDOWS AND ORPHANS OF DECEASED MEMBERS.

The condition of the "Fund for the Relief of Widows and Orphans of Deceased Members" at this date is as follows:

One $500 first mortgage 5 per cent. University of Maryland bond, market value	$500 00
Amount in Commonwealth Savings Bank	418 56
Total	$918 56

Subscriptions still unpaid amount to $25. New subscriptions received during the year were: Dr. J. W. Chambers, $25; Dr. W. B. Wolf, $10; Miss W. Bowie Dulin, $5; Cash, 50 cents.

An application for aid was received last September from an aged lady, the widow of Dr. John T. Keats of the Eastern Shore, a graduate of the University of Maryland, class of 1858. Dr. Keats had died in this city on the 19th of June, 1905, leaving his widow in extremely necessitous circumstances, aggravated by a long illness of her son from typhoid fever. This son was her only dependence, and he lost his situation and their means of livelihood by this illness. The case was vouched for as in every way worthy by the President of the Faculty, Dr. Samuel T. Earle; whereupon $25 was appropriated to her relief from the interest of the Fund. Thus was this poor lady, who had seen better days, tided over a period of great distress and, as it appeared, of absolute want. Such cases—occurring in the families of our own profession as they do—must appeal very deeply to the sympathy of us all, and we hope the recital of this one will lead every member of this Faculty to make some contribution to this Fund, however small it may be, and also induce all with large means to remember it by bequests when they make their wills. It is the only doctors' charity in this State, and it is a most deserving one. It should not only be considered a duty for us to support it, but a privilege and a pleasure.

In conclusion, the Committee respectfully asks for the adoption by this House of the following resolution:

Resolved, That the sum of $100 be appropriated annually to the "Fund for the Relief of Widows and Orphans of Deceased Members."

Eugene F. Cordell, M.D., Chairman.
Robert W. Johnson, M.D.
J. W. Chambers, M.D.
Daniel W. Cathell, M.D.
Thomas S. Cullen, M.D.
Committee.

Society Reports.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD MARCH 19, 1906.

A Simple Method for the Quantitative Determination of Proteid in Milk—Dr. Boggs. Before presenting the subject set forth above Dr. Boggs, with Dr. MacCallum's permission, exhibited two unusual malarial specimens obtained from the blood of a patient. These specimens represent the parthenogenetic division or development of the organism. The female form persists after the male has died out, and throws out a polar-body structure, followed by a division of the nucleus unequally, which is, in turn, followed by a division of the protoplasm. Eventually a number of spore bodies are formed.

The analysis of milk and the determination of the percentage of its constituents has acquired more and more importance during the past few years as the metabolism of infants has received more attention. This analysis is confined to (a) a determination of the fat content by one or another modifications of the Babcock method; (b) the proteid is determined by calculation, the sugar percentage being supposed to be a constant, the specific gravity being determined directly, and various empirical formulae being used in the calculation.

To determine the proteid content of a given specimen of milk accurately one could precipitate the proteid and weigh the precipitate. The objection to this method, however, is that it requires too much time to be employed as a routine. This same objection holds in regard to the Kjeldahl method of determining the total nitrogen.

Five or six years ago Woodward described a clinical method for the determination of the total proteid by means of a specific burette with which to separate the cream. Then the cream-free milk was precipitated with Esbach's reagent in graduated tubes and the amount of precipitate read off by means of a scale. The objections to this method are several—first, picric acid is not a good precipitant, the conditions must be very constant as regards temperature, etc., and at Dr. Slemmon's suggestion I began a series of experiments, employing different reagents in the hope of arriving at some easy method by the employment of the Esbach tubes.

Among other reagents were tried picric acid, mercuric nitrate, and tannic acid. The first named of these was found to precipitate the proteid in unequal flocculi and to leave a portion of the precipitate floating on the surface of the liquid. The mercuric nitrate also has the objection that it allows a partial decomposition with a gas formation, and also causes a portion of floating precipitate, while the tannic acid, although it causes a fine, almost impalpable powder-like precipitate, causes this column of powder to contract in all directions and topple over, crumbling down, and giving a bad reading. Finally, I tried phosphotungstic acid, which has proven very satisfactory, precipitating all of the proteid.

Having found the best precipitating reagent, I tested various concentrations of milk in order to determine that which would give the best results. It was found that human milk in a dilution of 1 in 10 would give results very closely approximated to those control experiments carried out by means of the Kjeldahl method and sufficiently accurate for clinical use.

The optimum solution of the reagent is as follows, a hydrochloric-acid solution of phosphotungstic acid: Phosphotungstic acid, 25 grams; distilled water, 125 c. cm. After solution is obtained add 25 c. cm. of concentrated hydrochloric acid in 100 c. cm. of distilled water. It is desirable to add the hydrochloric acid to the water and dilute it, as this avoids precipitating any of the phosphotungstic acid. The reagent should be kept in dark bottles, as the sunlight precipitates it and darkens the solution.

Temperature exerts a considerable influence upon the precipitation, though less on the method using the phosphotungstic acid than the others. A temperature of from 18° to 25° C. has no appreciable effect on the amount of precipitate brought about by this reagent, though extremes of heat or cold influence this reaction.

A number of experiments were carried out to determine whether the proportion of fat had any effect on the precipitation of the proteid. First, a number of natural milks were tested, and no effect noted; then an artificial mixture with a very low proteid content compared to the amount of fat was used, but even here there was no effect found.

The technique of the method is precisely that of the Esbach method. The diluted milk is poured into the tube up to the line marked U, reading to the bottom of the meniscus; the reagent poured in to the line R, and the tube inverted a number of times slowly. The tubes are set aside in the rack for 24 hours and the percentage read to the top of the precipitate. The volume of the precipitate reaches a constant minimum in 24 hours.

There is a difference in the precipitation of human and cow's milk, due to the fact that human milk contains less proteid than cow's, and it has been shown that a dilution of 1 in 20 for cow's milk is better.

In a series of some 300 experiments it was found the mean variation for human milk was 2.10 per cent., and 3.10 per cent. for cow's milk as controlled by the Kjeldahl method.

As large amounts of human milk are not to be obtained, it is necessary that a method to be successful must be capable of dealing with small amounts of milk, and by reason of this fact cylinders were found not accurate enough to make the dilutions. I have devised a small flask, graduated to hold 20 c. cm., and a pipette of 2 cm., by means of which an accurate dilution of 1 in 10 or 1 in 20 may be made. Where the proteid content falls very low it is best to make a series of dilutions in order to control the results.

If the dilution is made 1 in 10, we read the result directly from the scale on the tube; if 1 in 20, we multiply by 2, or if 1 in 5, we divide by 2.

The evenness and constancy of the precipitate was shown by a set of tables which Dr. Boggs exhibited to the society. The margin of error by this method seems less than by the method of determining only one of the factors and using this result in figuring out the proteid by means of an empirical formula.

The Blood in Pernicious Anemia—Dr. Emerson. I wish to call attention

to certain elements in the blood and to certain blood conditions which we have noted in the cases admitted to the wards during the past five years.

First, the blood in this disease shows a higher average count than in other clinics, and I believe this is due to the fact that cases are admitted for other than the condition of the blood itself—the nervous manifestations of the disease, for example.

Secondly, there is almost constantly a non-parallelism between the blood-count and the patient's condition. The patient will enter with a certain count feeling badly, and will leave later with exactly the same count, though he feels well. Another group illustrating this same fact is that where the count of a patient will rise steadily, though the patient dies. Still another is the group where there is a rise, then a fall to about the first count, and the death of the patient occurs. This rise and fall is of interest. With a 50,000 variation in the count per day, this is due not to the destruction of the red-blood corpuscles, but to changes in the concentration of the plasma, changes which are greater in this disease than in any other.

A rise, however, of from 15,000 to 20,000 cells per day means a new production of corpuscles, as this rise is accompanied by an increase in the leucocytes and eosinophiles, which shows bone-marrow activity. These rises are the only ones due to the marrow activity.

In a certain number of cases with a count of from 300,000 to 700,000 cells at the time of death, death appeared to have resulted from the anemia alone, as there were no complications. This seems to be the average count at the time of death from the anemia alone.

Megaloblasts—and by this term I mean a large nucleated red-blood cell, the nucleus of which is about the size of a normal erythrocyte, all with smaller nuclei being considered as intermediate forms—are of considerable interest. The reason for the line of division given is as follows: The marrow of an infant or of a case operated on for empyema shows two groups of cells—one with a large nucleus, the megaloblast described above, and secondly, a red cell with a smaller nucleus. We suppose the larger cells represent the centers of the islands for proliferation of the red-blood cells, and these float out in this disease pernicious anemia, and are the megaloblasts.

The line put down here in this clinic for a crisis is the finding of 50 nucleated red-blood cells per 1000 leucocytes, and fully one-half of the crises do not result in a gain in the red cells.

A color index of over one and one-half is open to criticism. The color index in this disease is high for (a) the large size of the cells, though the color of the cells at times seems to indicate an increase in iron content, though this is probably not any higher than normal; (b) large amount of microcytes; (c) the most important factor is the poor instrument used, and all high counts are due to the V. Fleischl instrument

The leucocytes in pernicious anemia are interesting. As a rule, they vary directly with the red-blood corpuscles, rising and falling with them. In many of these variations the percentage of the leucocytes remains the same. Cases with a leucocytosis usually have some complication.

In considering the percentages of the leucocytes a thing to be emphasized is the finding of, say, 60 per cent. small mononuclears. This does not mean a lymphocytosis, as the absolute, rather than the relative, count must always

be considered. In only 17 per cent. of all our cases has there been a lymphocytosis.

The last point I wish to emphasize is the count of the eosinophiles, not the percentage, as this cannot amount to much, but the absolute count. If these cells are rising, the case is improving, and if they are decreasing, the opposite is true. This is well shown by a case with a count of 2,700,000 cells right along during the stay in the hospital. During this time the eosinophiles were steadily dropping, and reached zero at the time of the patient's death. Even with a rising red-blood count the falling eosinophiles tell of the approach of death.

Some Peculiar Forms of Cirrhosis of the Liver—Dr. MacCallum. The specimens I wish to show this evening are of a peculiar nature in which cirrhosis was not suspected, and a peculiar liver was found at autopsy.

The first liver showed numerous depressed areas or lines coursing over the surface of the liver with blood vessels in them. Microscopically, these linelike areas are of scar tissue, the intervening substance being normal liver.

The second case is the liver from a woman who died from an acute streptococcic infection following tonsilitis, and at autopsy we found a peculiar liver surface. This was pale, with little grooved areas separating flat plateau-like elevations. The cut surface showed the same appearance throughout the organ. Microscopically, these scarlike areas, again, were found to consist of atrophic cells shrunken to narrow strands of protoplasm, while the intervening liver substance was normal.

A third case is similar, that of a man who died of pernicious anemia with the characteristic lesions in all the organs. The liver was mottled with light areas separated by dark-red lines, which were also seen on the cut surface. Microscopically, the picture was the same as in the two previous cases.

A fourth case is from a case of splenomyelogenous leukemia, and presents the same picture.

These pictures might strike one as being ordinary cases of cirrhosis of the liver, but they differ in their characteristics. We have an analogous process to that of ordinary cirrhosis, but it is not a progressive one, as it affects only a portion of the liver, and is evidently the effect of one injury, the one injury producing the one definite patch of cirrhosis, all going on smoothly after that. This is, of course, a far different process to ordinary cirrhosis, which is progressive.

I have also two other specimens showing the same lesion, though to a more marked degree. The first is that from a boy who died with symptoms of an acute intoxication resembling acute yellow atrophy. At autopsy we found the liver to be reduced nearly to a skeleton, all the liver substances being practically destroyed with the exception of one nodule, which had regenerated and hypertrophied to a large mass, leaving no real lack of liver tissue.

This finding was repeated in another case, that of a child, dead of some surgical trouble, who had suffered from an attack of scarlet fever some six months before. The liver showed a mottling with prominent rosette-like nodules, the same appearing on section of the organ. These rosettes were made up of a central large vein, from which branched feathery outgrowths of liver substance, separated by shrunken dark-red scar tissue. The liver

showed, evidently as the result of the scarlet fever, a destruction of the liver substance, followed by the scar formation.

In all of these cases it is to be emphasized that there was but one factor—the result of one single injury—an infectious or a toxic process which has succeeded in destroying enough liver substance to require regeneration. This is especially marked in the last two cases and less so in the first four. The relation which this injury and lesion holds to the ordinary cirrhosis is that here we find the result of a single lesion, while in the ordinary form we deal with the results of a continuous and repeated injury.

Book Reviews.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital; one time Clinical Professor of Diseases of Children in the University of Pennsylvania; Member of the Association of American Physicians, etc., assisted by H. R. M. Landis, M.D., Visiting Physician to the Tuberculosis Department of the Philadelphia Hospital, to the White Haven Sanatorium, and to the Phipps Institute; Demonstrator of Clinical Medicine in the Jefferson Medical College. Volume IV. December, 1905. Diseases of the Digestive Tract and Allied Organs—Liver, Pancreas, and Peritoneum—Anesthetics, Fractures, Dislocations, Amputations, Surgery of the Extremities, and Orthopedics—Genito-Urinary Diseases—Diseases of the Kidneys—Practical Therapeutic Referendum.

Volume I. March, 1906. Surgery of the Head, Neck, and Thorax—Infectious Diseases, including Acute Rheumatism, Croupous Pneumonia, and Influenza—The Diseases of Children—Rhinology and Laryngology—Otology. Philadelphia and New York: Lea Bros. & Co. 1906.

Dr. Frazier's article on the surgery of the head, neck, and thorax gives an interesting summary of operations for epilepsy, brain tumor, and plastic operations on the face. A very interesting statistical summary is given of the reported cases of heart suture and direct cardiac massage.

Dr. Preble's article on infectious diseases emphasizes the *rôle* played by insects in the transmission of diseases, and reviews the revival of many so-called specifics in the treatment of infectious diseases. The diseases which he considers are diphtheria, dysentery, epidemic meningitis, influenza, malaria, measles, pneumonia, febrile rheumatism, scarlet fever, smallpox, tetanus, tuberculosis, typhoid fever, pertussis, and yellow fever.

Dr. Crandall's article on diseases of children describes the growing importance of hygienic and dietetic measures rather than drugs in the treatment of the diseases of infancy. The following diseases are discussed: Sclerema, congenital stridor, cephalematoma, brachial birth, palsy, hemorrhagic disease of the new-born, asphyxia, umbilical cord, hernia, prematurity, cyclic vomiting, rickets, marasmus.

Infant foods, modified milk, and breast-feeding are discussed.

Dr. Kyle in his article on rhinology discusses the surgery of the nasal septum, the treatment of hay fever by pollantin, diphtheria antitoxin in ozena, the use of medicated ointments in the nose, adrenalin in asthma, the treatment of suppuration in the accessory nasal sinuses, the relation of the teeth to antral empyemata, tonsillectomy, tonsillar tuberculosis, pneumococcal sore throat, tobacco throat, carcinoma of the larynx, laryngeal tuberculosis.

Dr. Randall's article on otology records the conservative tendency of modern otologists, especially as regards the radical operation of chronic suppurative otitis media, the complications of this disease, and the operative treatment of sinus thrombosis and brain abscess are discussed.

The articles in the December number include Diseases of the Digestive Tract, by Dr. J. Dutton Steele; Genito-Urinary Diseases, by Dr. William T. Belfield; Diseases of the Kidneys, by Dr. John Rose Bradford; Anesthetics and Surgery of the Extremities, by Dr. Joseph C. Bloodgood, and Practical Therapeutic Referendum, by Dr. H. R. M. Landis.

The Influence of the Menstrual Function on Certain Diseases of the Skin. By L. Duncan Bulkley, M.D. New York and London: Rebman Company. 1906.

In this little book of 100 pages Bulkley discusses the influence of the menstrual function on certain diseases of the skin. The main body of the work is devoted to a presentation of clinical records which shows this relationship, while the last third of the book is given up to an analysis of the facts presented in these clinical records and of the theories of this relationship, with a few pages on treatment. B.

Case-Teaching in Medicine. By R. C. Cabot, M.D. Boston: D. C. Heath & Co. 1906.

In this book Cabot gives the salient points in the history of 78 cases, selected with great care, and these histories are followed by questions which the student is supposed to answer. Cabot claims many advantages for this method of teaching—for example, the boundless wealth of material presented to the student, the presentation of the essential points in each case to the student, the means of testing the pupil's ability to gather up and use the knowledge he has acquired from various sources, the ability to group isolated symptoms into well-knit diagnoses, the ability of one teacher to keep a large class busy, the ability on the part of the teacher to find out the gaps in each student's knowledge, and the absence of the necessity for expensive apparatus. The cases in this series are very well selected and extremely well presented, and the questions in connection with the cases are pertinent and to the point. Unquestionably in cases of enormous classes and deficient clinical material this method of teaching should prove valuable, but where the material is large and there is a sufficient number of instructors, we believe that the clinical methods are far more satisfactory. B.

MARYLAND MEDICAL JOURNAL.

JOHN S. FULTON, M.D., *Editor.*

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BALTIMORE, AUGUST, 1906

THE SYRIAN LEPER, GEORGE RASHID.

THE sanitary sensation of the month has been furnished by a young Syrian named George Rashid, who had a pardonable desire to leave West Virginia for his home in Palestine. Certain citizens of West Virignia are said to have "assisted" the young man out of respect for his bodily affliction, leprosy. From Elkins, W. Va., Mr. Rashid started to New York, but was imprudent enough to leave the train at Cumberland, Md. The explanation of this mistake is that the generous people of West Virginia gave him transportation only as far as Cumberland. The Allegany county health authorities having been informed in advance, took steps to make his sojourn in Cumberland brief. He was not allowed to leave the railroad yards. Mr. Rashid spent some hours, it is said, sitting beside an empty box car, and, acting on the advice of his Cumberland friends, so the story goes, he got into the box car and passed into the custody of the Baltimore & Ohio Railroad. The car was routed to New York, and went as far as Philadelphia. At Philadelphia Mr. Rashid is said to have had 16 hours of rest. Within that time the transportation company became convinced that the health authorities of Pennsylvania and New Jersey would not permit Mr. Rashid to complete his journey through the State. The car was then attached to a west-bound train for return to Baltimore. The health commissioner of Baltimore protested, and the car was cut off at Golden Ring, Baltimore county, where the railroad officials took care of him until the Baltimore county officials were notified and took charge of him. He still remains at Golden Ring, and the problem of his future care now confronts the State Board of Health. One thing is certain, they say—no attempt will be made to shift the responsibility by any unfair means upon another Commonwealth. It is to be hoped that this unfortunate young man will reach the haven of his desire among the cedars of Lebanon in his own land.

A few years ago a leprous woman, Mary Sansone, came to Baltimore from Allegheny City, Pa. The nature of her disease was recognized at Johns Hopkins Hospital, and the diagnosis cost the hospital the care and custody of Mary Sansone for the remainder of her life. The health commissioner of Baltimore proposed to isolate Mary Sansone on the old quarantine grounds, a tract of 136 desolate acres, the major part of its boundary being the broad, open waters of Patapsco river, long used for the isolation of smallpox and other infectious diseases, a spot so remote from the abodes of men and from the highways of travel that the most ingenious mind could not conceive a ponderable chance of material harm to anyone in its use for isolating a leper. Nevertheless the city was restrained from using the place

for this humane purpose, and the court made the injunction permanent. Only a mind trained in the uncommon nonsense of law can discuss the merits of the judicial opinion of this case. Law is the only science which can invest a fragment of a figment with the attributes of verity and make all men pay hypocritical respect to utter, obvious, rip-roaring nonsense.

For several years the United States Public Health Service has been seeking the authority of Congress to establish a national leprosarium on one of the many large government reservations. A bill providing for such an institution passed the Senate during the recent Congress. It was defeated on the floor of the House of Representatives. The bill would have passed without dissent if each State and Territory in which a government reservation happens to be situated could have had a special exemption from the provisions of the act—in other words, if the bill could have been made inoperative. Of course, there are not a great many suitable reservations, but the States most interested were able to defeat the bill. The case of George Rashid may help the future progress of this measure by lining up the delegations from two or three States strongly in its favor.

The underhand method by which the people of Elkins solved the problem of George Rashid will hardly be approved by the people of West Virginia. If there had been a board of health in West Virginia, the case of George Rashid would have been brought under surveillance long ago. There is a medical-examining board in West Virginia, and as an examining board we have no unfavorable comment to make upon it, save that it is disguised by act of assembly as a State Board of Health. It has existence, but no utility as a board of health. This state of affairs is not likely to be satisfactory to the State of West Virginia after its significance becomes well known. The case of George Rashid may perhaps stir up an active doubt whether, on one hand, the name State Board of Health is an appropriate disguise for a medical-examining board, and whether, on the other hand, the subtitle Board of Medical Examiners does not signify a fatal perversion of function in a board of health.

THE LOCAL MEAT INSPECTION IN CHICAGO AND ELSEWHERE.

The Health Department of Chicago has twice recently sought the aid of the county medical society in connection with its official duties. In the first instance the purpose was to defend its bureau of vital statistics against frequent criticisms published in the Maryland Medical Journal, *American Medicine,* the *American Journal of Hygiene* and elsewhere. The report of this committee brought results quite opposite to those desired, for it inspired an article in the *American Journal of Hygiene* which came to the attention of the daily papers and gave the controversy the wide publicity which the Health Department fears far more than any amount of publication in medical journals. The second attempt of the medical society to aid the Health Department was more successful. The society was able to select, and did select, a good committee for the second task, which was to review the Department's regulations concerning the inspection of meats. The committee when appointed sought the advice of authoritative men in various parts of the country—W. H. Welch, Theobald Smith, E. O. Jordan, W. H. Dalrymple, J. G. Rutherford, A. D. Melvin, and F. F. Westbrook.

The report of the committee and the letters of the consultants are all published in the *Bulletin* for July 14. Both the report and the addenda call to mind an editorial comment of the MARYLAND MEDICAL JOURNAL for July. We said that the butchers and packers are apt to decide every doubtful point on the theory that all meat which is not bad is good, while the consumers are apt to decide all such questions on the converse theory that all meat which is not good is bad. We said further that food materials cannot be justly classified on either of these principles. It is by no means surprising that the committee and the consultants express the views which are most comforting to butchers and packers, namely, that meat which is not bad is good. The scientific man answers the question asked, and not another question. He has wholly subdued the waywardness of ordinary *homo sapiens* and keeps the straight and narrow way. The form of inquiry has fixed the scope of the answers so definitely that all the consultants have replied to practically the same effect. With one exception they all protect their opinions by the same proviso as to technical efficiency in inspection. They answer as if the inquiry presupposed an inspection by thoroughly trained men, and the Health Department accepts the answers as if no question could be raised on this point. One of the consultants was absent-minded enough to venture outside the prescribed limits and to suggest that the inspection of meats has a certain relation to the health of those cattle which are not yet meat, and that this consideration of live-stock hygiene comes round again into relation with human health. The committee treats this very rational suggestion with scant courtesy, and even misconstrues it as a "voice in favor of indiscriminate condemnation of the meat of cattle with slight localized tuberculosis."

The result would be interesting if the purveyors of some public institution should ask the advice of the same consultants concerning a contract for a certain amount of meat from well-nourished actinomycotic animals at a trifling advance in price over the meat of healthy animals. What would be said to an overconfident butcher who should inquire whether it would be proper when slaughtering pregnant cows to make sure of the sale of the placenta by adding it to his sausage meat rather than to depend upon the small demand for the afterbirth as a separate edible? There is absolutely no evidence that those who eat afterbirths are injured in health or defrauded of nutrition. Notwithstanding the nature of the inquiry and the overscrupulous respect of the consultants for the bounds prescribed, two of the consultants allude to the more important aspect of food inspection, namely, the right of the public to be truly informed concerning market meat. But these suggestions are practically lost in the concord of opinion on the specific inquiry. The meat of well-nourished, healthy animals is good; that, by common consent, is true. Is the meat of tuberculous, well-nourished animals good? Ask the man. He says "yes." Things equal to the same thing are equal to each other. An axiom will stand as well by common default as by common consent, and, for business purposes, a little better. Why, then, should the people be afflicted with knowledge? Let the people of Chicago and of Maryland, like good children, eat what is set before them, and be content until their wise men are overtaken and brought to confusion by the wisdom of the simple.

Medical Items.

BOARD OF MEDICAL EXAMINERS REPRESENTING THE MARYLAND STATE HOMEOPATHIC MEDICAL SOCIETY.

EXAMINATION QUESTIONS, JUNE 5 AND 6, 1906.

MATERIA MEDICA.

1. Mention an alkaloid of belladonna, opium, coca, podophyllum, and nux vomica, respectively, and give dose of each.

2. What is the usual physiological dose of the following drugs: Sulphate of morphia, croton oil, castor oil? Name indications for use of same.

3. What is arsenicum album, and mention three of its prominent symptoms.

4. Give the indications for apis mellifica, cantharis, and terebintha in bladder troubles.

5. Compare bryonia alba and ipecacuanha in bronchitis.

6. Mention five drugs indicated in hemorrhages, and give enough indications to differentiate each, respectively.

7. When would a homeopathic practitioner be justified in prescribing a cathartic?

8. Compare apis, belladonna, and rhus toxicodendron in erysipelas, and lilium tigrinum, pulsatilla, and aurum muriaticum in pelvic troubles.

9. Differentiate aconite, gelsemium, belladonna, bryonia, and arsenicum in febrile affections, introducing any concomitant symptoms you think characteristic.

10. Differentiate the throat symptoms of lachesis, belladonna, ignatia capsicum, and hepar.

ANATOMY.

1. Give the number and classification of bones comprising the human skeleton.

2. Describe minutely the frontal bone, and give its articulations.

3. Give the number and names of the muscles of the thigh, and give a full description of the sartorius muscle.

4. Give the number and names of the muscles of the back, and minute description of the serratus magnus.

5. Describe the cerebellum.

6. Give number and names of the cranial nerves and full description of the fifth pair.

7. Describe in full the deep palmar arch.

8. Describe the internal saphenous vein.

9. Give a full description of the heart.

10. Describe the knee joint and its ligaments.

PHYSIOLOGY.

1. Name the organs which are essential to the process of digestion.

2. Describe the gastric juice, and give the average amount secreted in 24 hours.

3. Describe the bile, give its function, and average amount secreted in 24 hours.

4. Name the forces keeping the blood in circulation.

5. Name conditions which will produce changes in body temperature.

6. What is a nerve plexus and its function?

7. Describe the blood—(a) as to composition, (b) as to function, (c) average quantity in man.

8. Give the names of the principal organs and tissue of secretion of the body.

9. Describe the different coats of the eye, and give the functions of each.

10. Describe what is meant by reflex action of nerve, and give example.

OBSTETRICS.

1. How may pregnancy be recognized before quickening, and on what symptoms may the diagnosis be justified?

2. Give three conditions indicating the use of forceps in labor.

3. Give management of normal labor and care of mother until one week after delivery of child.

4. How would you treat post-partum hemorrhage?

5. How would you prepare a patient for delivery and yourself for attendance?

6. How would you treat a case of puerperal eclampsia?

7. Describe in detail the delivery of a shoulder presentation, right or left arm prolapsed.

8. Give some of the most frequent causes of dystocia, and differentiate between uterine inertia and obstructed labor.

9. Describe in detail delivery in breech presentation with especial reference to the aftercoming head.

10. What is meant by "L. O. A.," "L. O. P.," "R. O. A.," "R. M. P.?"

MEDICAL CHEMISTRY.

1. What is atomic weight, specific gravity, and synthesis?

2. What are the properties of glycerine and its uses in medical practice?

3. Name five alkalies and give their metals.

4. What are the chemical properties of chlorine, and how is it prepared?

5. How is ferric hydrate prepared, and for what is it principally used?

6. What is glucose, and how could you chemically distinguish between it and cane sugar?

7. Give in full a test for sugar in the urine.

8. How is oxygen obtained for medical purposes? Name some of its uses.

9. Describe in detail two reliable methods of detecting the presence of albumen in the urine and one clinical method for its quantitative estimation.

10. What is paris green, and what are its effects if taken into the system?

SURGERY.

1. Describe, give symptoms, and treatment of Pott's fracture.

2. Differentiate a fracture of the neck of the humerus from a downward dislocation of the humerus, and give treatment.

3. Give diagnosis of the presence of gallstones and detailed surgical treatment of same.

4. Give symptoms and treatment of floating kidney.

5. Describe phimosis, paraphimosis, and how would you treat each condition?

6. What tendons require severing in talipes equino-varus?

7. Give diagnosis of acute abscess and treatment of the same.

8. Give local treatment, and reasons therefor, of burns of the second and third degrees.

9. What is an embolus, what a thrombus? Give pathological conditions favoring their existence.

10. Differentiate between benign and malignant tumors.

PATHOLOGY AND PRACTICE.

1. Give the pathology of acute follicular tonsillitis, and differentiate between it and diphtheria.

2. What is (a) sapremia, (b) septicemia, (c) pyemia?

3. Give the pathology and symptoms of chronic cystitis, and also give the treatment.

4. Give symptoms and treatment of acute otitis media.

5. Give etiology and symptoms of acute gastritis.

6. Give course of typhoid fever and treatment.

7. What are the principal symptoms which would warrant a diagnosis of acute appendicitis?

8. Give symptoms and treatment of acute pericarditis.

9. Give symptoms and treatment of epidemic cerebro-spinal meningitis.

10. Give treatment of acute capillary bronchitis.

THE case of George Rashid, the Syrian leper now in custody at Golden Ring, Baltimore county, has elicited many offers of help, but none more interesting than the following proposal from a man in Washington:

"I saw an article in the Washington paper in reference to one George Rossett, a Syrian leper. I can cure any person of this disease of leprosy or plague. It is nothing more than an excessive abnormal condition of the blood caused by fever. The first stage is to control the fever. I have two ordinary remedies for internal treatment, and also two remedies for external treatment. I am a student in occultism, and when I want to know anything I sit and do not think, and then thoughts come to me. I do not think, and have not for a long time, but allow thoughts to come to me. I can prevent the following diseases, viz.: Smallpox, scarlet fever, typhoid fever, cholera, and yellow fever if the remedies are taken in time. I expect soon to form a company and advertise these remedies except the one for leprosy; that cannot be sold as a medicine, but must be administered by a personal contact with the subject. If you have any case in your hospital that you are in doubts about its termination for the welfare of the patient, I can tell you the exact complaint that the patient is afflicted with and also prescribe the remedy for a cure. I have certain methods that must be followed for a complete success."

OUR friends across the northern border are in high fettle for the meeting of the British Medical Association in Toronto August 21-25. The *Canadian Journal of Medicine and Surgery* for July is an Association number, giving an excellent prospectus and full information about all the arrangements. The illustrations are numerous, and the entire production most creditable. It can fairly be claimed that many American physicians are looking forward to this event with pleasure hardly less than that of the Canadians. Baltimore will be well represented, and in almost every section some Marylanders will be heard.

DR. JOHN RUHRAH has been made professor of therapeutics and clinical medicine in the College of Physicians and Surgeons.

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ON THE PROPHYLAXIS OF TYPHOID FEVER.

By W. S. Thayer, M.D.

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It is difficult to protect oneself from an enemy whose nature and whereabouts are unknown. If we reflect upon our position but a a few years ago with regard to most of the infectious diseases, we must realize that this was practically the situation. Great changes, however, have taken place within the last 20 years. To take but a few examples, how far have cholera and plague and yellow fever lost their terrors! Once the presence of one of these diseases is recognized, we possess now knowledge which gives us the means to prevent its further spread. The ever-present danger lies in the existence of foci in which the infection prevails as an endemic, where, owing to the ignorance or shiftlessness or prejudices of the inhabitants, no attempt has as yet been made to overcome the danger at its source. Thus it is that, with regard to cholera and plague, India and China, and, with regard to yellow fever, certain parts of the West Indies and Central and South America are a constant menace to the civilized world. The last 25 years have witnessed a great awakening. This is the day of preventive medicine, and it has already become recognized that the responsibilities in this matter are not confined to medical men alone; the general public, too, must play its part, and its part is no small one. The results of the widespread, popular campaign against tuberculosis which has been initiated in the last few years throughout the civilized world are already apparent.

We have, however, among us another disease which is endemic throughout our country districts north, south, east and west, and from these endemic foci there arise yearly epidemics varying in size from those which affect a score or two of people in the country to such as cause thousands of cases and hundreds of deaths in large cities, as, for example, those which for some years have afflicted

Pittsburg and Philadelphia. In the Spanish War there were 20,738 cases of typhoid fever among our troops. *Practically one-fifth of the soldiers encamped in this country during the war acquired the disease, and* 1580 *died.*

Fulton[1] has demonstrated the fact that typhoid fever is essentially a country disease; that it is in the rural districts that it is permanently endemic; that the proportion of deaths from typhoid in the country is considerably higher than that in the city, and that it is the country which infects and gives rise in great part to the epidemics which occur in the cities. I do not know that our rural morbidity from typhoid fever varies materially from that in other countries, but certain it is that the figures in our cities are far from creditable. In the first number of the Public Health Reports for 1904[2] there was published a most instructive table of the mortality from typhoid fever in those cities of the United States with a population of above 70,000, the rate varying from 9.7 per 100,000 population for Savannah to 124.7 for Pittsburg. This mortality in Pittsburg is simply appalling—*an average of one and one-quarter deaths for every* 1000 *inhabitants; at the very lowest possible estimate one case for every* 100 *inhabitants.* The figures for Baltimore in 1903 were somewhat over 30—for 1904, 43 per 100,000.

Now, what do we know of this disease? Are there no measures of protection which we can adopt to combat this appalling mortality? What is typhoid fever? Twenty-five years ago we were ignorant as to its cause and nature. Today we are well aware that typhoid fever is brought about by the entrance into the organism of a specific bacterium—bacillus typhosus. We know that in the great majority of instances the infectious agent gains entrance through the mouth with food or drink, although there is some reason to believe that it may at times enter through the air passages by means of inhaled dust. It soon finds its way into the blood, in which it multiplies, and is distributed to various organs of the body. Through the agency of a specific poison or poisons intimately connected with the bodies of these bacteria there develops a characteristic intoxication which we know as typhoid fever. As a result of certain more or less characteristic anatomical changes, especially in the intestine, there arise in some cases various local manifestations. But these local manifestations are not the main features of the disease. Essentially, typhoid fever is a septicemia, and in the great majority of instances typhoid bacilli may be cultivated by proper methods during life from the circulating blood. At necropsy they are to be found in all the internal organs, while in about one-third of the cases they may be cultivated from the intestinal tract and from the urine.

Now, in order to combat the disease we must know, in addition, (1) *the sources of infection, the means by which the infecting*

[1]Typhoid Fever: Some Unconsidered Hindrances in Its Prophylaxis. *Journal of the American Medical Association*, Chicago, 1904, XLII, 73.

[2]Public Health Reports. Washington (Government Printing Office), 1904, XIX, Pt. I, 5.

organism is usually conveyed into the body, and (2) *the habitat of the organism outside of the body—where it comes from.*

(1) *Sources of Infection.*—It is now well known that infection takes place usually through the gastro-intestinal tract, possibly at times by inhaled air.

How do the typhoid bacilli enter into the food and drink?

(a) *Water.*—The *rôle* of water has been and is probably largely overestimated by the general public, mainly owing to the fact that the common water supply, if infected, may, and not infrequently does, give rise to larger and more striking epidemics than can arise in any other way. An infected general water supply, however, is directly of relatively little importance in the ever-prevailing country epidemics which are responsible for so many deaths each year. In an enormous number of cases occurring in the encampments of our army during the Spanish War the effect of water as a conveyer of infection was slight and unimportant. Indirectly, however, in both country and city, water often plays an important part. A slightly contaminated supply, of which, perhaps, many individuals might drink without serious effect, may well serve now and then to convey the infection to some substance such as milk, which is an excellent culture medium for the organism. If one bacillus were, for instance, left in a milk can which was rinsed with infected water, there would develop in a few hours in milk enough bacilli to affect many people. And epidemics of typhoid fever due to infected milk are of common occurrence in urban as well as in rural populations.

(b) *Ice.*—The *rôle* of ice has been much discussed. It must be said that there is yet little evidence to show its great importance. It has, however, been proven that typhoid bacilli may retain their vitality for over four months at least in ice,[3] while the most casual inspection of the sources from which our ice supply is often obtained will serve to convince us of the possibilities of contamination.

(c) *Uncooked Vegetables.*—There can be little doubt that in some instances green vegetables, such as lettuce and celery, which are eaten raw, may serve as conveyers of infection. Human dejecta are often used as manure for gardens in which these substances are grown, and colon bacilli have been more than once demonstrated upon these articles of diet, while Laveran reports an instance in which the eggs of tenia were discovered upon lettuce supplied for a garrison of French troops.

(d) *Dust.*—It was the opinion of Drs. Reed, Vaughan, and Shakespeare[4] that dust was to be regarded as a possible source for the spread of contamination in connection with the epidemics in our army during the Spanish War both through direct inhalation and through the dissemination of bacteria not yet dead upon un-

[3]Park: Duration of Life of Typhoid Bacilli, Derived from Twenty Different Sources, in Ice. *Journal Boston Society Medical Science,* 1900-1901, V, 371.

[4]Reed, Vaughan, and Shakespeare: Report on the Origin and Spread of Typhoid Fever in United States Military Camps During the Spanish War of 1898. Washington (Government Printing Office), 1904, 667, 4°.

protected food capable of serving as a culture medium. It may easily be seen how this might occur in badly-infected localities.

(e) *Flies.*—The observations of many students, especially those of Reed, Vaughan, and Shakespeare, during the Spanish War, and the recent important studies of Dr. Alice Hamilton[5] of Chicago, have shown that the common housefly is a grave source of danger in typhoid fever. The way in which the disease spreads through a household is familiar to everyone. The manner in which flies in the army encampments spread from the infected pits to the mess table and kitchen was graphically described in the valuable report to which I have so frequently referred, while the more positive and striking proof of the agency of flies is afforded by Dr. Hamilton's studies. In an epidemic of typhoid fever in the city of Chicago, which arose in all probability from a contaminated general water supply, it was noted that in certain circumscribed localities the disease was so much more prevalent than in the city at large that there could be no question but that some other cause than the general contamination of the supply was at work. An investigation of these regions showed that they were localities in which the sewerage was of a most primitive sort. There was often no sewerage system at all—simply country outhouses, which, in many instances, had overflowed, sometimes filling the yard, sometimes the cellars of the houses. The people of these localities were poor and for the most part ignorant of necessary precautions. In a number of instances whole families, one after another, came down with the disease. Flies in enormous numbers were demonstrated in and outside of the affected houses, often swarming over food which might well have served as a culture medium for the bacilli. Typhoid bacilli were on various occasions cultivated from flies captured in and outside these infected houses. Contamination of food by flies may probably be regarded as one of the main sources of the spread of the disease in our rural districts. When one reflects upon the ordinary sanitary arrangements of the simple country-house he must feel that it would be strange if this were not so.

(f) There is another source of the spread of typhoid fever which has been by no means sufficiently recognized, namely, that of a direct *contact* either with the patient or with fomites. Typhoid bacilli are frequently present, not only in the stools and urine of the patient, but also in his sputa, and those who attend him must be constantly exposed to the danger of soiling their hands with infected material. I met last summer with a most interesting case, in which the patient, a child, infected two nurses and the attending physician. All other sources of contamination could be easily ruled out. The experience of Koch and his pupils in several recent epidemics in the country districts in Germany[6] go far to show that

[5]Hamilton: *Journal of the American Medical Association*, 1903, XL, 596.
[6]Drigalski: Ueber Ergebnisse bei der Bekämpfung des Typhus nach Robert Koch. *Centralbl. f. Bakt.*, Jena. 1904, orig., XXXV[1], 776.

the spread of the disease by flies and by contact plays a more important part than has been previously realized.

It should be remembered that convalescents from typhoid may carry the bacilli in their system and spread about in their excreta for considerable periods of time.[7]

Experiments have shown that when a pure culture of typhoid bacilli is poured upon clothes the organisms retain their vitality for from two to three months, and it is highly probable that in the rolls of blankets such as are carried by the soldier they may live for a longer period of time.[8]

In cities which are properly drained many of these dangers are much diminished and in general the condition of the inhabitants is much better, with the one exception that in most American towns there is the ever-present danger of a general poisoning of the water supply.

(2) *Habitat.*—Where does the typhoid bacillus come from? *It cannot be too much emphasized that every case of typhoid fever comes from another; that the typhoid bacillus gets into the external medium only from a case of human typhoid fever, and that it escapes from the human being by means of the feces, of the urine, of the sputa, of the bath water, of the soiled clothes.* The experiments of many observers go to show that the urine in typhoid fever contains bacilli in about one-third of the cases during the height of the disease. Generally the organisms disappear with convalescence. Sometimes, however, they may be present for long periods afterwards, even for months. It is fair to say that in most of these instances there is evidence of their presence in the visible cloudiness of the urine or the presence of a slight cystitis or pyelitis, but not always. In the feces, again, the bacilli are to be found, according to the observations of Von Drigalski, in about 33 per cent. of the cases between the eleventh and twentieth days, while they may remain present for long periods after convalescence, though this is exceptional. A considerable number of observers have demonstrated typhoid bacillus in the sputa of patients with this disease, while their presence in the bath water, in view of the not infrequent involuntary dejections which occur during the baths, is, of course, self-evident. Experience, especially during the Spanish War, has emphasized the probable importance of infected clothes. Experimentally, it has been shown that typhoid bacilli may live under ground for as much as a year, but there is little to suggest that the prolonged existence of the typhoid bacilli in the soil often plays a *rôle* of great importance.

Ought not this knowledge to give us a fair measure of power to prevent the disease and to protect the public? The answer is self-evident. What steps should be taken?

Prophylactic Measures.—The prophylactic measures which we should adopt against typhoid fever may be divided into two general classes:

[7]Ueber chronische Typhusbazillenträger. *Klinisches Jahrbuch*, Jena, 1905, XIV, 476.
[8]Reed, Vaughan, and Shakespeare. Op. cit.

(1) The prevention of the entrance of typhoid bacilli into the subject.

(2) The prevention of their escape from the patient.

(1) *The Prevention of the Entrance of the Bacteria Into the Subject.*—These measures are, in a general way, familiar to all and need little comment in this communication.

(a) *Protection of the Water Supply.*—In towns the relation of the well to the house and to other structures should, of course, be carefully considered. In the city the surroundings of the source of the supply should be carefully cleared up, while the eventual installation of proper filtration plants—*filtration plants which have been tested and passed upon by disinterested scientific experts*—is an unquestioned necessity for all of our large municipalities if we wish to protect our citizens and to keep pace with the progress of the world. The water supply has an undoubted relation to the urban prevalence of typhoid fever. It is somewhat humiliating to compare our urban typhoid mortality with that of the larger European cities. As a matter of interest, a few months ago I ran over the records in the Public Health Reports of a few European cities, which I compared with those of the city of Baltimore, which occupies a position not far from the middle of the list of American cities with a population of above 70,000. The figures are striking. Against a mortality of somewhat over 30 per 100,000 for Baltimore, we find a mortality of slightly over 12 for Paris, of 12 for London, of but little over 6 for Berlin, *while in Hamburg, a town of about the size of Baltimore, which, before the introduction of a filtration plant in* 1891, *had a mortality of* 24.7, *the death-rate from typhoid fever* 10 *years later, in* 1901, *was but* 5.1 *as against* 25 *and a fraction for Baltimore in the same year—and* 43 *in* 1904!

The necessity of conscientious and general boiling of water, if the supply be suspicious, is familiar enough to all.

(b) Care with regard to the eating of all contaminable foods need not be insisted upon. It should, however, be observed that the habit, widely prevalent in this country, of drinking unsterilized milk from uncertain sources plays probably a very large part in spreading typhoid fever in our midst.

(c) *Proper Precautions With Regard to Flies.*—The more general use of mosquito netting as a sanitary measure should be encouraged. Special measures should be adopted to keep flies away from food in kitchens, pantries, and on the table.

(d) *The Construction of Sanitary Waterclosets or Outhouses.*—This is a most difficult matter in the country, but one, as may be readily seen, of grave importance. Every measure should be taken to preserve the dejecta from exposure to flies. Tight spring doors should be provided, and all windows and openings should be netted.

(e) *Personal Cleanliness.*—It is of the utmost importance to remember that typhoid fever is a contagious disease. He who comes in any way in contact with the patient cannot be too careful. Dirty hands are too often the agents of infection, not only of the individual, but of food, and may serve to spread the disease abroad.

(f) *Preventive Inoculations.*—That a certain degree of active immunity against typhoid fever may be conferred by subcutaneous inoculations with dead cultures of the bacillus has been clearly shown, especially by the observations of Pfeiffer and Kolle[9] and Wright.[10] The results of inoculations on a large scale carried out in the British army in South Africa show unquestionably not only that the inoculated are less prone to infection, but that the course of the disease when acquired is milder. In time of epidemic in armies or among attendants in fever wards such vaccinations should be carried out.

(2) *Prevention of the Escape of the Infectious Agent From the Patient.—The point of greatest importance, however, especially in the public, in the prophylaxis against typhoid fever consists in the prevention of the escape of the bacillus from the human being into the external medium.* The problem is in no way different from that in cholera, in yellow fever, in plague, in tuberculosis. As Cole[11] has pointed out, it is only because the rate of mortality is so much less than it is in cholera or in some of these more malignant infections, and because, alas, we have become so familiar with the prevalence of the disease in our midst, that we neglect so many vital precautions.

To prevent the escape of typhoid bacilli from the infected individual demands the concerted effort not only of the individual physician, but of *local, State,* and *national* departments of health. To carry out thorough and complete measures would involve the establishment of hygienic stations throughout the country, systematic examination of the dejecta, stools, and blood of suspicious cases, and more than this, of healthy individuals in the immediate neighborhood. It would involve keeping the typhoid patient under supervision for a long period of time after his convalescence, as is now done in the case of diphtheria. It will, I fear, be a long time before such ideal conditions can be brought about. But there is an immense amount that we can do ourselves. We know that while there are exceptions, the typhoid patient ceases in the great majority of cases to be a danger to the community at the end of his convalescence, and if we, as physicians, were to insist upon the proper sterilization of everything which may be contaminated by the patient, if we were to treat every suspicious case as if it were typhoid fever, we should be able to save thousands of lives yearly and we should make rapid steps toward the eradication of the disease.

Now, the measures which we should carry out are not difficult. They have been admirably summarized by Cole.[12]

(a) *Protection of the Patient From Flies.*—This is an extremely important point. It brings up with it the question of the advisability of the isolation of the typhoid patient. As Cole observes, it would doubtless be far better if our typhoid patients were isolated in separate rooms or wards, not only on account of the danger of

[9] *Deutsch. med. Wochenschr.*, 1896, XXII, 735.
[10] A Short Treatise on Antityphoid Inoculation, 8°, Westminster (Constable), 1904.
[11] The Prevention of Typhoid Fever. *Journal of the American Medical Association*, 1904, XLII, 1399.
[12] Op. cit.

transmission of the infectious agent by means of flies, but because of the influence which it would have on the attendants in stimulating them to carry out the necessary rules of precaution better than is now commonly done. It would be well if the medical and general public realized more generally that *typhoid fever is a contagious disease.* The ward or the room should be thoroughly protected by fly screens. If this be impossible, the patient should be kept continually covered by a netting during the season in which flies are about.

(b) *Sterilization of the Urine.*—The simplest and best method of sterilizing the urine is to place about 200 c. c. of a solution of 1 to 1000 bichloride of mercury in a large jar, which should always be kept covered. The urine should be poured directly into this jar. This amount of bichloride would be sufficient to sterilize 3000 c. c. of urine. The amount should be left standing until two hours after the last urine has been added. Another vessel should be provided containing 1 to 1000 bichloride of mercury or a sufficient quantity of 1 to 20 carbolic acid, in which the urinal may be immersed during the period when it is not in use. A urinal which is used for a typhoid patient should not be used for others without previous sterilization. As Dr. Cole has pointed out, the infectiousness of the urine may be diminished in cases where typhoid bacilli have been found by the administration of urotropin. *Urotropin does not sterilize the urine.* It does, however, prevent the multiplication of bacilli in the urinary passages, and is an important help. This may be given in doses of about two (grs. xxx) per day, divided into three or four doses.

(c) *Sterilization of the Feces.*—The most satisfactory method of sterilizing the feces is to add to the dejection about twice its volume of 1 to 20 carbolic acid; stir this thoroughly and allow it to stand for at least two hours. The bedpan should be thoroughly washed out with carbolic acid and kept immersed between the periods of its use, unless it be sterilized by boiling or heat. The feces should be kept in this mixture for at least two hours.

(d) *Sterilization of the Bath Water.*—This is best accomplished, according to Cole, by adding to each bathtub about half a pound of chloride of lime, which will thoroughly sterilize the water in half an hour. The chloride of lime may be bought in half-pound sealed packages, and should be opened immediately before using, as it readily deteriorates.

(e) *Sterilization of the Linen.*—All linen should be soaked in 1 to 20 carbolic acid for two hours before sending to the laundry. If, however, it is put directly into the boiler, the same end may be served.

(f) *Sterilization of Dishes and Utensils.*—All dishes should be sterilized thoroughly by boiling.

(g) *Supervision of the Patient Until His Excreta Are Free From Bacilli.*—This is a demand impossible to meet without skilled laboratory assistance. In the absence of this we must continue all precautions till the discharge of the patient, warning him when he leaves our hands that unless he exercises care in the disposition of

his excreta he may be a source of danger to those about him. Happily, the great majority of cases are by this time free from bacilli.

If these measures were carried out strictly in every case, typhoid fever could be eradicated from the community. There are, however, various difficulties in the way, chiefly because of the facts that many cases of mild walking typhoid are unrecognized, and that in some others convalescents excrete typhoid bacilli in their urine and feces for months. Only by the establishment of extensive experiment stations, as has already been attempted in parts of Germany, can the best results be accomplished. But what can be accomplished in this way is strikingly suggested by the report of the treatment of the epidemic at Trier by Koch.

There is no doubt that careful antiseptic precautions in the care of the patient are the most important prophylactic measures in connection with typhoid fever. We should remember that every case of typhoid fever arises from another; that it is through the neglect and carelessness in occasional cases that the great destructive epidemics arise. What, then, is our duty? We must arouse the public, medical and general, to the necessity of these precautions, and the only way to do this is to practice them invariably ourselves, to impress upon our patients and colleagues the urgent necessity for such action, to take every step to educate the public.

The day must come when our health departments, State and local, will supply us with proper means, not only for carrying out all necessary disinfection, but for the investigation of individual cases, just as is now done in so many States and cities with regard to diphtheria. The busy practitioner cannot make elaborate bacteriological examinations, but that these should be carried out, and *carried out by competent and conscientious individuals,* is an urgent necessity. That all this will come I have no doubt. But the beginning lies with us. It may be urged that these measures are irksome and time-taking. To a certain extent they are, but are they nearly as irksome and nearly as time-taking as those antiseptic precautions which the modern surgeon uses every day, the neglect of which would be regarded by the profession and public as a crime? I cannot but feel that in this respect our position as practitioners of internal medicine is hardly creditable when compared with that occupied by our brothers, the surgeons. There is just as much necessity for the employment of antiseptic precautions in the treatment of a patient with typhoid fever as there is in an operation, for instance, upon a cancer of the breast. Nay, there is far more, for in the latter instance there is danger to but one individual, while in the former our neglect may cost many lives, resulting not only in the development of further cases in the immediate household, but perhaps in a devastating epidemic.

There is much to accomplish, and years may yet pass before public measures will be what they should be, but we must act today, and there is much for us to do. It is for us who know to help to protect those who know not how to protect themselves, and the reward will come quickly, for in protecting them we are protecting ourselves.

Current Literature.

REVIEW IN MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

BLOOD CRYOSCOPY IN DETERMINING THE FUNCTIONAL ACTIVITY OF THE KIDNEYS.

Beer (*American Journal of the Medical Sciences,* Vol. CXXXI, p. 203) has written a very interesting article on the present status of blood cryoscopy in determining the functional activity of the kidneys. After briefly calling attention to the work of Koranyi and Kümmell, he describes the principles on which this is based. Normally human blood or plasma freezes at — 56° C., the kidneys appearing to be the most important regulators of the concentration of the blood, and as the blood is more or less concentrated the freezing point will be respectively lower or higher. According to Kümmell, "if the blood freezes at — 56° C. there is no general disturbance of renal function, which would correspond in the majority of cases to a bilateral kidney disease, whereas increased concentration regularly denotes a bilateral kidney disease." Beer calls attention to the error in this conclusion, and says very rightly "before we can accept this inversion of the original data it must be proven that the molecular concentration of the blood is regulated purely and simply by the excretory activity of the kidneys." As we have good reason to think that the kidneys are not the sole regulators of the blood's concentration, nobody has the right to reason as if they were. Beer next mentions a number of conditions apart from renal diseases which affect the concentration of the blood, as, for instance, non-compensated endocarditis, cirrhosis of the liver, epilepsy, eclampsia, large abdominal tumors, acute gout, the prodromal stage of malaria, and the terminal stage of malignant tumors. He also calls attention to the fact that "a functionally-disturbed kidney may lead to marked molecular concentration of the blood, though it be anatomically normal, or almost normal, and though in all probability it will prove adequate to carry on its work after the removal of the cause of its disturbed function," and "cryoscopic data, like quantitative analyses of the urine, tell us in a measure what is happening at the moment, and nothing more. The compensatory powers of the kidney are far from the cryoscopist's observational powers, and probably they will never reveal themselves." The summary of this admirable review of the subject of blood cryoscopy is as follows:

1. The kidneys, though the most important organs in regulating the molecular concentration and osmotic pressure of the blood, are not the only organs, etc., concerned with this intricate process.

2. An anatomically normal, or almost normal, kidney may be so disturbed in its functional activity as to appear seriously diseased, being temporarily incapable of excreting its quota of molecules.

3. The concentration of the blood may be normal, equal — 56° C., even though the kidneys are functionally inactive and anatomically very badly diseased.

4. The concentration of the blood may be increased to — 60° C. or higher, contraindicating any removal of kidney tissue according to Kümmell, even though the second kidney is anatomically normal, but is suffering from a functional disturbance produced by nervous reflexes or by toxins which come to it through the circulation from the other diseased kidney.

5. The concentration of the blood may be markedly increased even though both kidneys are in good condition.

6. In bilateral disease, as Rovsing has pointed out, if nephrectomy is done with normal concentration, the operator may remove in the diseased organ the majority of the functioning tissue of the kidneys, and thus bring on uremia and death, because the renal tissue left in the patient is inadequate for the excretory work.

7. The list of cases that have survived a nephrectomy, despite high molecular concentration, — 60° C., is steadily growing. Many that Kümmell would refuse to operate radically because of excessive molecular concentration probably could be cured by partial or complete nephrectomy.

8. Patients with normal freezing point do not necessarily survive the operation, and are not in any way ensured against subsequent uremia.

9. In a large number of cases high concentration corresponds to bilateral kidney disease, but as yet we are unable to decide which cases of high concentration are not of renal origin, and, *vice versa,* which cases of low concentration are suffering or likely to suffer from renal insufficiency. With the solution of this problem future work will have to concern itself.

10. Cryoscopy of the blood, as yet, gives us but little absolutely accurate information as to the present activity of the kidneys; much less, naturally, does it tell us about the outlook, as it is in nowise capable of measuring the compensatory hypertrophy which may develop in any kidney.

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DEFECTIVE CHLORIDE ELIMINATION IN OBESITY.

Labbé and Furet (*La Presse Médicale,* 1905, December 16, No. 101, p. 809) furnish an article of interest in regard to defective chloride elimination as a factor in obesity. They first call attention to the unsatisfactory nature of practically all the cures for obesity, and to the fact that in the vast majority of cases after the cessation of the treatment the obesity rapidly returns. They have carried out a careful series of experiments to determine the conditions of water and chloride elimination in normal human beings and in the

obese. In the former condition there is a very close relationship existing between the amount of water and the amount of salts eliminated. On the other hand, in the case of the obese there is no constant relationship between the elimination of water and of chloride, while they also showed by a series of careful experiments that in the case of obese persons placed upon a diet containing a certain amount of salts there was a constant retention of chlorides in the organism. According to these two authors the condition of obesity in many cases is referable to this peculiar dystrophy in regard to the elimination of water and chloride. First, there will be a storing up of chlorides in the organism without increase in weight, and subsequently a distinct storing up of water until the stored-up fluids are in an isotonic condition, this latter stage being, of course, associated with increase in weight.

As regards treatment they are firmly opposed to the so-called dry treatment of obesity, as they believe that it is distinctly dangerous, and they believe that the best results are to be obtained by a careful dietetic regimen associated with a marked restriction of the chlorides ingested. To quote their conclusions, "dietetic restriction pushed according to the different stages in the development of the obesity, perhaps only to the physiological minimum, perhaps to a condition of a greater or less insufficiency; on the other hand, restriction sometimes reaching to complete abstinence of the alimentary chlorides, justified by the intraorganic accumulation of chlorides among the obese. Such appear the two most effective elements in preventing the increase or favoring the decrease of the body weight among the obese."

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THE ELIMINATION OF CHLORIDES FROM THE DIET IN SCARLET FEVER.

Pater (*La Presse Médicale,* 1906, No. 40) gives the result of his experiments upon the action of a diet free from chlorides in the course and during the convalescence from scarlet fever. He believes, in the first place, that a diet containing chloride is liable to do harm to the kidneys, and, in the second place, that patients are unable to rapidly regain their weight and their strength on a purely milk diet. He has studied carefully 15 cases in this connection, ranging in age between 4 and 13 years. These patients were kept on a milk diet until the cessation of fever, after which they were immediately placed on the following dietary: Bread without salt, soups prepared with milk, purée of potatoes, maccaroni and rice, served with fresh butter and milk, and various sweetmeats, the children receiving also a half liter of milk each daily. In some of the cases this dietary was begun during the period of eruption, and in all cases gain in weight occurred simultaneously with the institution of this dietary, the gain being regular and steady. Pater furnishes interesting curves in this connection, all of which show the same continuous increase in weight. For instance, one case, an infant of 15 kilograms, gained 150 grams per day, while another, a child of 26 kilograms, gained 237 grams per day. These

figures were borne out by the body measurement, which was taken at regular intervals, the thoracic perimeter increasing 3 to 4 cm. during the stay in the hospital. The urea was not modified during this dietary, while albuminuria, if present, rapidly ceased.

The following conclusions are given by Pater as the result of his investigation:

First, a dietary without chloride is advantageous in scarlet fever. It is well borne and even desired by the children, who may satisfy their appetites with quite a diverse dietary.

Second, this regimen is useful. The body weight immediately increases on its institution. It increases regularly whether instituted early or late in the course of the disease. This regimen shortens the sickness by hurrying on convalescence, which immediately follows the febrile period with this mode of treatment, and thus the patient is in a far better condition to regain his strength rapidly and not to develop secondary infections.

Third, this regimen is without danger. It may be instituted in the first days of the disease as soon as the fever has fallen. It is at least effective in the prevention of nephritis as a pure milk diet, and if albuminuria is present it rapidly disappears under this treatment.

For all these reasons it appears to Pater that a dietary free from chlorides should be employed in all cases of scarlet fever.

Book Reviews.

Abdominal Operations. By B. G. A. Moynihan, M.S., F.R.C.S. Philadelphia and London: W. B. Saunders & Co. 1905.

In this volume Moynihan includes only those operations which are common to the two sexes, and leaves out the surgery of the kidney and the bladder and the various operations for hernia. The work is divided into five sections. In Section 1 general considerations are taken up, including the bacteriology of the stomach and intestines, in which Cushing's work is appreciatively mentioned, the preparations for abdominal operations, complications and sequels of abdominal operation, the treatment of peritonitis and subphrenic abscess, and a brief consideration of the surgical treatment of enteroptosis. Section 2 is devoted to operations upon the stomach, and is a peculiarly satisfactory section. In this division of the subject Finney's gastroduodenostomy and Beyea's gastropexy are described. The third section, the largest in the book, is devoted to surgery of the intestines, and in this no mention is made of Murphy's button or any other mechanical appliance, which we, with Monyihan, believe is a wise omission. The fourth section is given up to operations upon the liver, concluding with a short chapter on the surgical treatment of cirrhosis of the liver, while the fifth and last section is devoted to diseases of the pancreas and spleen.

The operations are carefully described, and the accompanying illustrations are very descriptive and illuminating, and in every respect the work is satisfactory. B.

THE RELATION OF DISEASES OF THE SKIN TO INTERNAL DISORDERS. By L. Duncan Bulkley, M.D. New York and London: Rebman Company. 1906.

This little book consists of four lectures on the relation of diseases of the skin to internal disorders. There are so many gaps in our knowledge of this relationship that the book must from necessity be rather fragmentary, but it is nevertheless interesting and suggestive, and should stimulate physicians to pay more attention to this connection so that more light may be thrown upon it. The first lecture discusses the effect of faulty metabolism, autointoxication, and neurotic disturbance upon the skin, especial attention being paid to the eruptions associated with gout, rheumatism, diabetes, obesity, and scrofula. The second lecture discusses digestive disorders, excretory disorders, cutaneous disturbances, and respiratory disturbances in their relation to skin diseases, while the third lecture takes up the relationship of nervous, circulatory, and sexual disorders to dermatological affections, as well as referring briefly to anemia, malaria, and syphilis in this connection. The fourth lecture is given up to a discussion of diet and hygiene in skin diseases, with some remarks on general therapeutics. The book makes no pretense to being a complete exposition of the subject, but it is well worth the hour or two necessary for its perusal, as it is bound to stimulate the reader's thoughts along certain new channels. B.

DISEASES OF METABOLISM AND OF THE BLOOD, ANIMAL PARASITES, TOXICOLOGY. Edited by R. C. Cabot, M.D.; translated by J. L. Salinger, M.D. New York and London: D. Appleton & Co. 1906.

This is an extremely interesting work and one which really fills a long-felt want. The object of the volume is to present a picture of diseases which were formerly designated as of obscure origin, and to outline their treatment, each article being the work of a master in his special field. The articles making up the volume and their authors are as follows: "The Quantitative Analysis of Disturbances of Metabolism in the Clinic," by Weintraud; "Over-Nutrition and Under-Nutrition," by Von Noorden; "Diabetes Mellitus," by Naunyn; "Diabetes Insipidus," by Gerhart; "Gout and Obesity," by Ebstein; "Myxedema," by Ewald; "Addison's Disease," by Reiss; "Acromegaly," by Benda; "Chronic Rheumatism," by His; "Pentosuria," by Blumenthal; "Blood Examination," by Lazarus; "The Anemias," by Ehrlich and Lazarus; "Chlorosis," by Grawitz; "Leukemia," by Von Leube; "Pseudo-Leukemia," by Senator; "The Hemorrhagic Diatheses," by Litter; "The Animal Parasites of Man," by Peiper," and "Important Poisons and Their Treatment," by Von Jaksch. One has but to read over this list of names to realize that each subject is in the hands of an authority, and one has but to read the book to realize how thorough, satisfactory, and up to date the articles are. The book is extremely suggestive, and no one can fail to derive a great deal of knowledge from its perusal. B.

PROCEEDINGS

OF THE

MEDICAL AND CHIRURGICAL FACULTY

OF MARYLAND

Editorial and Publishing Committee.

ALEXIUS MCGLANNAN, M.D. J. A. CHATARD, M.D. JOHN RUHRAH, M.D.

Secretaries of the County Societies are earnestly requested to send reports of meetings and all items of personal mention and of local or general interest for publication addressed to Dr. Alexius McGlannan, 847 North Eutaw Street, Baltimore.

SEMIANNUAL MEETING.

THE semiannual meeting of the Medical and Chirurgical Faculty of Maryland will be held at Annapolis September 28 and 29. Every effort has been made to make this meeting most attractive and interesting.

Passed Assistant Surgeon P. S. Rossiter, U. S. N., will give an address on leprosy.

The Anne Arundel County Medical Society will entertain the visitors, and Rear-Admiral Sands has extended to the society the courtesies of the Naval Academy. The social features outlined in last month's JOURNAL will be carried out.

The excursions on the bay will be on the U. S. S. Standish, placed at the disposal of the Faculty through the kindness of the Navy Department.

The Ladies' Auxiliary Reception Committee will look after the welfare of the lady visitors.

Carvel Hall will be headquarters, and the management of this hotel offers special rates to the members of the Faculty and their families and friends during the meeting.

The Trunk Line Association has made the following rates for the meeting: Fare and one-third for the round trip from *trunk-line points in Maryland, Delaware, District of Columbia and Pennsylvania (east of and including Erie, Oil City and Pittsburg)* on card orders. Tickets to be sold to Annapolis, Baltimore, Annapolis Junction or Odenton, and good going September 25 to 28, returning to September 30, inclusive.

The card order is a joint one, covering all lines. The orders

will be furnished by this office, and are to be distributed by you. They must be presented to ticket agents at starting points to secure tickets at the reduced fares, and will be honored by the agents of any of the lines, including the Western Maryland Railroad, over which the reduction applies. Please advise how many of the orders will be required for distribution among your members.

Also fare and one-third on certificates *from central passenger points in Pennsylvania (west of Erie, Oil City and Pittsburg)*. Each of your members when purchasing regular one-way tickets from such points to Annapolis should ask for a central passenger certificate, which, upon being endorsed by you at the meeting, will be honored by the agent at Annapolis for return ticket at one-third fare.

Members desiring additional cards must notify Dr. A. P. Henning, 1317 Madison avenue, Baltimore, before September 15.

A special car from Baltimore will be attached to the Annapolis Short Line train, leaving Camden Station at 10.15 A. M. on the 28th. As mentioned last month, the trip will be inexpensive, costing Baltimore city members not more than $5, including all necessary expenses, and the meeting will be the occasion of many delightful opportunities for pleasure and improvement.

REPORT OF THE BOARD OF MEDICAL EXAMINERS TO THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, APRIL, 1906.

THE annual report of the Board of Medical Examiners herewith submitted will contain, as heretofore, the summary of results of examination, together with the questions used in examination. Were it not for the necessity of presenting our work in this form for distribution to the various boards of examination and licensure throughout the country, this part of the report could well be omitted, as the recent arrangement whereby the MARYLAND MEDICAL JOURNAL has become the official organ of the Faculty provides for the distribution of this information to all the members. The summary of results of examination and questions are published in the JOURNAL as early as practicable after each examination, and the profession is thus brought into quick contact with this feature of the board's work.

The reciprocal relations which Maryland enjoys with other States remains practically unchanged, as presented in our last report. We have found, in conversation with members of the profession, as well as in public discussion, a widespread opinion that interstate medical reciprocity should be established upon the broadest and most liberal lines, and that every facility should be accorded physicians desirous of moving from one State to another. This disposition of the individual physician toward the establishment and enforcement of interstate medical reciprocity and licensure is most generous and usually most unwise. His training, his association with his fellows and his altruistic discharge of his great duty all tend to place

him in tender and sympathetic touch with humanity, hence his general attitude to those of his own who, apparently with proper motive, desire to leave one locality and take up residence in another. In meeting the demands for recognition of licenses issued by other States your board has, however, found many reasons for safeguarding this privilege. Naturally, the applicants for recognition of licenses of other States present very plausible motives for changing from one State to another, such as ill-health, unsuitability of climate where located and a desire to get into the salubrious air of Maryland, family ties and associations and old home scenes, and other apparently justifiable reasons. Careful investigation, however, discloses in many instances that the real desire is to possess licenses in many States, the object of which is open to suspicion of being at variance with that moral and professional standard for which all should strive. The practice of your board in determining recognition of a license issued by another State is compliance with the requirements embodied in our application blank, which covers the relations of the applicant to the Board of Medical Examiners of the State whose license he holds. His professional standing is ascertained by membership in the County Medical Society, although the board does not limit its investigation to the ascertainment of this membership. If it is found that the applicant is not in affiliation with a local medical society, certificate of professional reputability must be furnished by physicians of established character.

A recent paper appertaining to this subject, titled "Medical Forgeries," by Dr. S. D. Van Meter, secretary of the Board of Medical Examiners of Colorado, should be published by every medical journal. It presents several attempts to secure recognition in Colorado through fraudulent diplomas and licenses. The article is illustrated by fac-simile presentation of forged diplomas and licenses, as well as by photographs of the forgers and impersonators. For a time the perpetrators of these forgeries succeeded in the imposition, and had it not been for their criminal practices the fraudulent impersonations would not have been disclosed. The following brief extract from the paper may be interesting to you:

"In the spring of 1902 a man claiming to be George A. Elliott, M.D., University of Toronto, 1896, presented to the Colorado Medical Board for registration a genuine diploma of that school, and the board issued a temporary license. He immediately opened an establishment in Denver, which purported to be a private surgical hospital for women. The advertisements in the daily papers, however, revealed its true character. The Colorado statute had no provision for the revocation of a license, except on the ground of conviction of the licentiate of conduct of a criminal nature, so that the board was powerless to revoke his license. Application having been made for admission to the Colorado State Eclectic Medical Society, and the fact that the University of Toronto was not an eclectic school, suggested that this man could not be the original Dr. Elliott. After a prolonged search the real Dr. Elliott was located at Leamington, Ontario. Before papers could be issued for the arrest of this impersonator he was jailed on the charge of criminal abortion. He was allowed bail, which he promptly jumped. Investigation of this impostor's record revealed his right name; that he came originally from Chicago; that he had served time in the Illinois State Reformatory, from which institution he was paroled in

1898. In 1900 he appeared in Kansas City as Dr. George A. Elliott, where he conducted a place similar to his Denver institution."

Time does not allow further reference to this and other interesting revelations in the paper named, and we have quoted from it that you may fully realize the difficulty surrounding your board in its endeavor to guard against the incapable and the criminal, both from within and beyond our State boundaries. We are ready to receive the honorable and upright physician, but every applicant who seeks recognition does not belong to this class, and your board, representing this Faculty and the best interests of the profession, will close the gates as its judgment directs.

This Faculty has always stood for profound learning and high character, and from its organization has carried on its rolls the names of men illustrious as members of teaching bodies, and it is with great pleasure that your board can report that from all States practical evidences are received that medical colleges generally are making special effort to enforce examination of applicants for matriculation, so as to determine the possession of academic training essential to the successful prosecution of the study of medicine. If the profession is to adhere to its old standard and maintain its rank as learned, this primary preparation must be insisted upon without regard to the individual applicant or medical institution whose financial interests may be temporarily affected. The purpose and ambition of student and teacher should be the highest excellence, the foundation of which is a proper standard of admission requirements, coupled with thorough instruction subsequently in lecture-room, clinic and laboratory. The deficiency in academic education when the study of medicine is undertaken cannot be subsequently made up, as new duties, new studies and constantly increasing demands pressing upon the medical student leave no time, whatever his disposition may be, for the correction of pre-existing deficiencies.

Maryland was among the pioneers in the establishment of medical licensure. The position taken in this work has been steadily maintained, and the licentiates of the Board of Examiners of this State are eligible to recognition in all States where the law permits. This position thus secured has been greatly fortified by the action of the medical colleges of Baltimore in lengthening and amplifying their curricula. The increase in the number of hours of lecture, clinic and laboratory work, involving additional labor, absorbing much of the time of the instructors, is ample proof that the medical institutions of Baltimore are determined to maintain the highest standards and best interests of the profession. To emphasize the necessity for this preliminary training and subsequent thoroughness of instruction, permit us to present some of the answers in December, 1905, examination:

ANATOMY.

Question. "Name and locate the valves of the heart."

(The class was informed that "location" was in reference to the heart, and not to the surrounding chest walls.)

Answer. "The main valves of the Heart are the Bicuspid and the tricuspid, they are located respectfully as follows—the Bicuspid is in the right (Dexbra) ventricale of the heart and regulates the influx of the blood (Sanguis) its location being near the right Auricle in the veins carying or conveying Venus blood into the heart. The Tricuspid valve is

the shape of a Bishops Mitre and is located in the left (Sinistra) Ventricle of the heart (Cordiac) supported by the fleshy columns or chords (colmunea chorda) which are found therein, it regulates the outgoing arterial blood which has been arterialized and is now sent on its journey to convey life to the individual, it also prevents the return (reflex) action of the blood which has been sent into the aortic arch."

Ans. (same quection) "Mitril Trycospid aorta. Pulmonary semutuner and Bicospid valve—Also Mitral is situated just behind the head of the third rib at the sternum.

"Mitil valve is located between left Auricle and left ventricle. Tricuspid is located in the right side of the heart between Auricle and ventricle. The aorta is located at aortic opening and guards the aortic artery, the Pulmonary is at the opening in right auricle and Pulmonary artery aortic valve is in the left ventricle at the aortic opening. The Bicuspid is at the Vena Cava opening in the right auricle."

Ans. (same question) "The venious blood is emptied into the right auricle through the semilunar valves, it passes into the right ventricle through the tricuspid valve. It leaves the right ventricle through the pulmonary valve and is returned to the heart by the pulmonary vein through semilunar valves into the left auricle, from the left auricle it passes through the mitral valves into the left ventricle and then enters the aorta through the aortic valves."

Ans. (same question) "Aortil Valve situated between the left ventricle and the aorta. The Pulmonary valve situated between left auricle and pulmonic vein.

"Mitrol Valve situated between the left ventricle and left auricle. The semilunar valve situated between the right ventricle and right auricle."

Ans. (same question) "Pulmonary valve guards the pulmonary opening to pulmonary veins. The auricle-ventricular valves guards the right auricle and right ventricle."

Ques. 3. "What bones enter into the formation of the kneejoint? Name the ligaments of the kneejoint?"

Ans. "Fermour, tibia and fibula and covered by a sesamoid bone named the patella. The ligaments are the anterior and posterior. External and internal ligaments."

Ans. (same question) "Fermur, Tibia, Fibia and Patella. Ligament."

Ans. (same question) "Femur from above, Tibia below and the Patella or Knee Cap. The ligiments are——(no further answer)

Ques. "Give foramen of exit from cranium, function and distribution of the pneumogastric nerve."

Ans. "The Pneumogastric nerve arising as it does in the rear (posterior) and under (inferior) part of the (cerebullum) for part of the brain it passed backward whence it takes a backward course and passes into and through the forearm magnum, passing downward it passes near the spinal column on either side until it reaches the abdominal cavity whence it takes a spreading position and feeds and stimulates all gastric and digestive organs thereby giving them power and action to overcome all digestive hindrances, especially in the assimilation of food we eat, its branches spreading and reaching especially the splen pancreas and the various organs going to make up the process of digestion."

Ans. (same question) "The foramen of exit of the Pneumogastric from the cranium is called occipital and the function of the nerve is to stimulate movement of Diophram which aid the respirating movement."

Ans. (same question) "Foramen of exit from Cranium is the Jugular Foramen.

The Pneumogastric nerve supplies muscles of the eye also portion of nose and along superior maxillary bone."

Ques. 6. "Bound anterior and posterior triangles of the neck."

Ans. "The Anterior triangle of the neck is formed by starting a line at about the insertion of the Mylo-Hyoid muscle with the Hyoid-bone on the right side, thence crossing over in front to the same spot on the opposite or left side of the neck. Now passing down over the Platysmamyoides and sterno Cleido-mastoid, along the position occupied by the Omo-hyoid to a point in the center of the sternum (breast bone) thence back to the starting point."

The posterior triangle of the neck is formed by starting at a point about 1½ inches above the spine of the scapulae on the right side, running horizontally across to the same point on the opposite side thence going up the neck along the cervicalis ascends muscle crossing same and terminating at the Occipital protuberance of the occiput in the centre of same thence back to starting point on the opposite side."

Another to this question: "Bounded on the side by the platisma and above by the digestive muscle." And closes by wishing the examiner a Happy New Year and Merry Christmas.

The following answers in the examination in chemistry will also assist in illustrating the deficiencies revealed by the examination:

Ques. "Define the terms oxidation and combustion, and give an example of each. Explain the meaning of the terms combustible and supporter of combustion."

Ans. "Certain substances when heated take up oxygen causing oxidation. Some substances take up more oxygen when heated with other substances and are spocken of as good oxidizing agents."

Ques. "Give in detail a reliable test for the detection of free hydrochloric acid in a specimen of gastric contents."

Ans. "A test for the detection of free Hydrochloric acid in a specimen of gastric contents, is to get a small quantity of the gastric contents by means of a stomach pump put a portion of the contents in a glass tube upon observation when heating tube with contents in you will find a smoky appearance, upon taste it will have a little acid taste, when heated to a boiling point add a few dropps of nitric acid and the smoky condition will disappear and a settlement of bile secretion will appear at the bottom."

Ques. "Name the chlorine salts of mercury. Give the formula, common name and general properties of each, and discuss their relative toxicity."

Ans. "The chlorine salts are mercuric chloride and mercurous chloride. Formula HG. Common name Hydrargyrum. Properties they are both of a heavy white powders insoluble in water soluble in alcohol. The mercuric preparation is stronger than the mercurous Toxicity. When taken in over doses it produces salivation have an increased flow of saliva loosening of the teeth they may fall out gastric disturbances."

Ques. "Give the chemical definition of an alcohol, with the chemical

constitution and general properties of ethyl alcohol. Give the graphic (structural) formula of methyl alcohol (CH_4O)."

Ans. "An alcohol is the result of the action of organisms on carbohydrates causing fermentation resulting in carbonis acid gass and alcohol. CHxCHxCHxCHxO."

Ques. "Give in detail a reliable test for the detection of sugar in the urine; also a reliable method for the quantitative estimation of albumen in the urine."

Ans. "With the use of the Urinometer we can readily test the urine as well as by dropping into a sample of same a few drops of dilute hydrochloric acid if there be sugar present it will precipitate to the bottom of the vessel containing the same."

Ques. "Give the classification as to chemical composition of the several types of urinary calculi. Describe the general appearance of each type, and state what reaction (acid, alkaline, etc.) one would expect in the urine of each."

Ans. "Salt calculi which are alkaline or neutral reactino, and is composed of potassum sodium, &c. This type is of a soft consistency. The appearance is small triangular cubes. The uria or renal calculi which is acid in reaction, and small prism shaped in appearance."

PATHOLOGY.

Question. "Describe in detail, both macroscopically and microscopically, what you consider the most characteristic lesions of syphilis in the primary and tertiary stages, respectively."

Answer. "You will find Gumata shanker single ones also a discharge you will find organs liver enlarged spleen enlarged The mouth be dry if you examine discharge you will find bachilis there and * * * *

Ques. "Describe in detail the method employed for the isolation of an organism in pure culture."

Ans. "The method employed for the isolation of an organism in pure culture is by 3 means; By Dry and moist heat that is to put whatever organism in tube and apply heat until bouling point, and then have other sterilized tube and pour contents into it, and let cool off."

Ques. "Name the degenerations and infiltrations. Differentiate between fatty degeneration and fatty infiltration."

Ans. "Degenerations: Fatty, Amyloid, Waxy, Cazenous or Cheesy. Infiltrations: Fatty, Amyloid

"Fatty degeneration the adipose tissue of fat tissue breaks down and covers the surafce, this keeps coming up between the tissues in this way covering the structure with a fatty broken down material. The cells come up and break down. Fatty infiltration the fatty of adipose tissue squeezes between tissues and form a fatty massover a structure the cells forming one after another."

Ques. "Name and describe in detail the various elements one would expect to find in the microscopical examination of the discharge from a case of gonorrheal urethritis, and give in detail the different method of staining the gonococcus (Gram's)."

Ans. "Would expect to find a Gonococci and it is decolored by Grams method the protoplasm is staned Pink and the neculi is blue im Hematoxlym about 2 minets then in alcohol 1 or 2 minets then wash in tap water then in the Eison then mount in slide and cover mount in Canada Balsam and Label."

Ques. "Give the pathological anatomy of a case of tertian malarial fever of severe grade and long standing, with a microscopical description of the parasite involved. What insect acts as an intermediary?"

Ans. "In a case of tertian malarial fever I find my patient suffering with a dull headache, aches and pains all over the body, aspecially bones, no ambition, all being caused by the malarial poison having been inoculated into the blood which has no become very heavy and dark to thick to travel through the veins arteries and minute capillaries to supply the needs of the body, hence the result as above stated. The parasite being a small parasite appearing as a spider being of a very dark color. Insect. Mosquito."

Ques. "Name the various elements one would expect to find in the microscopical examination of a smear from a case of suspected diphtheria. Give, in detail, the method employed in making an early bacteriological diagnosis of such a case, with the method of staining and general morphology of the specific organism."

Ans. "In a microscopical examination you will find the characteristic diphtheria is non-mistakable shape &c. When a case is seen early a specimen should be taken from the exudate, with a sterilized swab made of sterile absorbent cotton and this is placed into a sterilized test tubs and then pluged up with cotton. The above named test tube should contain a solution of carbolic acid. It is then taken to the laboratory the suspected specimen stained with gentian blue or Bismark brown. This is done in a cover glass or a drop specimen can be prepared and examined."

PHYSIOLOGY.

Question. "Describe the normal pulse and give the average rate during infancy, youth and old age."

Ans. "The average rate during infancy 120
The average rate during youth 72
The average rate during old age 120 to 150."

Ans. (same question)
"Rate Infancy 125—134
Youth 73— 75
Adult and old age 100—120."

Ans. (same question)
"To every beat of the heart there is won of the pulse
normal pulse is strong and steddy.

Infancy	100—120
Youth	75— 80
Adult and old age	65— 70."

Ques. "Describe the functions of the thyroids and parathyroids, including a consideration of the effects of their removal."

Ans. "Removal of Thyroid gives creatism and evens up condition of body."

Ans. (same question) "Removal of Thyroids and parathyroids has no effect on the body except to cause possibly indigestion."

Ans. (same question) "Removal of Thyroids and parathyroids shows that they have no effect on the body ordinarily, as their removal does not effect the body."

Ques. "What is meant by diffusion and osmosis."

Ans. "When two or more substances meet in the blood or body is called osmosis.

"By diffusion is meant breaking up of gases and osmosis the company of gases."

Ques. "State what you know of the composition and physiological action of the pancreatic secretion."

Ans. "The pancreatic secretion is found in the pancres its physological is to caus the food to digest in the stomach."

Ans. (same question) "The pancreatic secretion has no physiological effect and the pancreas and liver both aid in digestion."

Ques. "What is the effect of strychnia on the central nervous system?"

Ans. "Strychnia excites the central nervous system and causes reflexes to act more quickly."

Ans. (same question) "Strychnia act in the central nervous system causes the nerves to become very weak, when taken in large doses it causes the eyes to become dilate and effects all the central nerves."

These answers present more forcibly than mere words of ours the necessity for academic and medical training. We know that teaching, the communicating of knowledge, is a most difficult task. When we consider the heterogeneous multitude making up the great body of medical students throughout the country, the surprise is that the work is so well done. The answers to the questions as above presented only demonstrate the magnitude of the struggle.

During the past winter violation of the law regulating medical practice has received some attention from the authorities in Baltimore city. The names of all who have failed to receive licenses and who, presumably, are practicing, have been submitted to the marshal of police, and measures are now being instituted looking to the prosecution of offenders. We have been in correspondence with licensing boards of various States as to the methods adopted to secure enforcement of the law, and its difficulty is universally admitted and largely regarded as due to indifference on the part of individual physicians, who are necessarily better informed as to the violations of law and attending circumstances than any others in the community. As the medical profession indorses this law it should be unequivocally committed to its enforcement. Throughout the counties the local medical societies are handling the subject quite satisfactorily, and the same method adopted in Baltimore would quickly bring those violating the law to an accounting.

Medical examination and licensure are now permanently established, but all that it conserves, all of that to which it aspires—the uplifting of the profession and the protection of the public from the ignorant and design-

ing—will depend upon the attitude of the medical profession. Are we not ourselves censurable that a legislative committee should give consideration to a subversive and destructive bill, alleged to be representative of the sentiment and wishes of this Faculty, when its author and sponsor was not a member of this body, but an illegal practitioner, a clear-cut violator of the law? Yet it is a fact that such a bill was introduced and referred to the committee on hygiene, and prompt action by the President and members of this Faculty was necessary to arrest its progress. Does it not mean that close, consolidated organization by the profession is necessary? The charlatan and pretender, coupled with those who have failed before the various State boards of examination and licensure, form a powerful combination associated with those whose business is politics, and, enriched by gains ill-gotten in their nefarious practices, they are equipped to subvert and destroy all law standing in their pathway. There is but one way for the profession to meet this condition, and that is by organization and demonstration to the public of its obligation to medical men for the immeasurable service of which individuals, localities and States are the recipients.

The medical profession is in constant warfare for the protection of the public against disease, involving a steady, positive reduction in the revenue arising from investment in a medical education, office equipment and individual capability for work. We urge the advance of admission requirements—an expensive procedure—a course of medical study of four years—an increased expense—and when practice is undertaken an office must be equipped with up-to-date requirements. With this entrance upon the active pursuits of professional life, the young physician is met by organized effort —made up largely by physicians, and without whose aid the effort "would die a-bornin' "—to prevent disease; to so inspect and care for public and domiciliary conditions that his field of opportunity for work and livelihood is most seriously curtailed. State and local boards of health cut with a wide swath into the expected harvest. Commissions for the prevention of the manufacture and sale of adulterated foods and the prevention of tuberculosis and other communicable diseases go hand in hand to restrict the opportunity of the physician to provide for himself and those to whom he is bound by ties forged by the tenderest and strongest impulses of his being. What, then, is the attitude of the profession toward this universal effort which thus minimizes its emoluments? Subordination of self and consecration to the amelioration of physical distress and suffering. No sacrifice is too great for the physician to make to alleviate the suffering of poor humanity. He makes it gladly; yet when legislation is sought whereby his work can be elevated and his profession be placed upon such a plane as will relieve it from the odium and disgrace of the quack, the charlatan, the pretender, the "Dr. Thomas Whites"—whose mill grinding out "love powders" was recently raided in Baltimore by the postoffice authorities—we are regarded by "representatives of the people" as coming with sinister, mercenary purposes to form a "doctors' trust." These are the plain, cold facts, gentlemen, which we must face, and the question springs from them, "Do not these conditions suggest that a different policy by the medical

profession is worthy of consideration?" We are not only in sympathy with every effort to prevent disease, to soften human suffering, but we go farther and hold up the glorious undisputed fact that whatever there is of disease prevented, of health restored and physical distress relieved, has been accomplished by medical men. Humanity is under tribute to the physician. The debt is so stupendous that it can never be paid. We do not ask for compensation, but we claim in simple justice that merit be recognized and that the medical profession be accorded that place to which it is entitled by the altruism and self-immolation of its members.

REPORT OF J. McP. SCOTT, TREASURER BOARD OF MEDICAL EXAMINERS OF MARYLAND, OF RECEIPTS AND EXPENDITURES SINCE REPORT OF APRIL 22, 1905.

Hagerstown, Md., April 16, 1906.

1905.	RECEIPTS.	
April 22.	Balance as per report	$208 55
1906.		
April 16.	Fees from licenses, permits and transfer	3256 10
	Total receipts	$3464 65

1905.	DISBURSEMENTS.	
May 5.	Arthur E. Ewens, returned fee	$15 00
May 10.	H. K. Startzman, postmaster	5 30
May 13.	Ira W. Hays, printing report, 1905	60 00
May 16.	H. K. Startzman, postmaster	5 30
May 20.	J. McP. Scott, traveling expenses, per diem at meetings, and examination	187 85
May 29.	Adam Deupert, clerk, costs in August Monath case	22 50
June 29.	C. C. Fulton Company, advertising June examination	12 00
June 29.	Baltimore News, advertising June examination	12 96
June 29.	A. S. Abell Company, advertising June examination	11 00
June 29.	D. M. Henderson, stationery supplies for June, 1905, examination.	30 96
June 29.	Herbert Harlan, for payment of typewriter and expenses June, 1905, examination	79 40
July 1.	Herbert Harlan, for payment for janitor watcher and hauling tables June, 1905, examination	35 00
July 10.	Charles McIntire, secretary, subscription Bulletin American Academy of Medicine	3 00
July 22.	Jas. W. Bangert, rent of Lehmann's Hall June, 1905, examination.	66 00
July 22.	William M. Dabney, examiner	79 25
July 22.	J. McP. Scott, secretary-treasurer, salary, including office rent and typewriter, to June, 1905	500 00
July 29.	Edwin J. Dirickson, examiner	136 75
Aug. 12.	Hagerstown Bookbinding & Printing Co	23 25
Aug. 31.	B. W. Goldsborough, examiner	109 00
Sept. 13.	Maryland Medical Journal electroplate	4 15
Sept. 13.	Hagerstown Bookbinding & Printing Co	5 25
Sept. 14.	Lewis A. Griffith, examiner	151 50
Nov. 4.	John B. Deming, Esq., on account salary, attorney	100 50

Nov.	28.	Charles H. Martin & Co., printing application blanks	17 00
Dec.	11.	C. C. Fulton & Co., December examination, 1905	8 55
Dec.	11.	Evening News Publishing Co., examination, 1905	9 77
Dec.	11.	A. S. Abell Company, examination, 1905	8 63
Dec.	23.	D. M. Henderson, stationery supplies December, 1905, examination.	9 17
Dec.	30.	Hagerstown Bookbinding & Printing Co	2 25
1906.			
Jan.	4.	Herbert Harlan, payment for moving tables	5 00
Jan.	4.	Herbert Harlan, examiner	124 25
Jan.	4.	M. E. Fort, mimeographic work, December, 1905, examination	20 00
Jan.	4.	Dr. J. N. Reik, services December, 1905, examination	20 00
Jan.	4.	Gustar Caution, janitor services December, 1905, examination	5 00
Jan.	4.	John Ruhräh, secretary, for use of Faculty Hall	40 00
Jan.	6.	Num & Co., typewriter paper	1 40
Jan.	6.	Hammond Typewriter Co	2 50
Jan.	6.	Edwin J. Dirickson, examiner	93 33
Jan.	6.	B. W. Goldsborough, examiner	76 00
Jan.	6.	Franklin B. Smith, examiner	173 00
Feb.	15.	Max Ways, clerk, list of registered physicians	1 50
Feb.	16.	Geo. W. Dowell, clerk Calvert county, list of registered physicians.	1 00
Feb.	17.	Benjamin D. Stephen, clerk Prince George's county, list of registered physicians	50
Feb.	19.	Enoch B. Abell, clerk St. Mary's county, list of registered physicians	30
Feb.	26.	B. D. Harison, secretary, membership American Confederation of Reciprocating and Licensing Boards	10 00
Mar.	14.	Lewis A. Griffith, examiner	74 00
April	12.	Maryland Journal Co., electroplates	2 50
April	13.	Hagerstown Bookbindery	4 00
April	14.	J. A. Stevens, examiner	180 00
April	16.	J. McP. Scott, cash paid out for telegrams, expressage, postage, and notary fees	41 65
April	16.	J. McP. Scott, per diem, railroad fare and hotel expenses	195 20
April	16.	John B. Deming, Esq., balance due to April 15, 1906, on salary as counsel	100 00
		Total expenditures	$2882 42
		By balance to close account	582 23
1906.			$3464 65
April	16.	To cash balance	582 23

THE ADVISABILITY OF THE FACULTY PUBLISHING ITS OWN JOURNAL.

By H. O. Reik, M.D.,

READ BEFORE THE GENERAL SESSION OF THE MEDICAL AND CHIRURGICAL FACULTY, APRIL 24, 1906—SUPPLEMENTAL REPORT TO THE PRESIDENT'S MESSAGE.

A REVIEW of our printed transactions of past years will reveal the fact that several very interesting presidential addresses, teeming with good advice and fertile suggestions, have been enthusiastically received, accorded a vote of recognition, and consigned to oblivion without even the formality of further consideration. This society, like many similar bodies, has seemed to think that some way or other the suggestions, once publicly made, would take care

of themselves. We trust that no such fate awaits the very interesting and extremely practical address to which we have just had the pleasure of listening. It was probably to avoid this that Dr. Earle adopted the plan of assigning some of the principal topics of his message to several "committees of one," as it were, for careful study, in the hope that they might present these special subjects in greater detail, and especially that they might lay before you and the House of Delegates well-defined working plans for the establishment of his suggestions without unnecessary delay.

I consider it an honor that our President should have conferred upon me the privilege of discussing with you two of the most important practical subjects with which he had to deal—the publication of our transactions and our relationship to medical journalism, and the securing of a suitable home for our library. I shall speak briefly of each and suggest a means whereby our desires may be attained, I believe, without much labor or expense.

In a paper presented to the Baltimore City Medical Society about a year ago I pointed out some essential features for maintaining the reorganized Faculty in a condition for effective work. To bind the individual members of the component societies to the State Faculty, to supply them with all the news items of importance from the State and the country at large, to keep them informed regarding the work of the national association, and to have a means of communication whereby the officers of the State Faculty may promptly reach every member with a call to action on any local or State question it is necessary to establish an official organ or bulletin. A special committee of the Faculty appointed to consider the question reported to the House of Delegates of last year that it would be advisable to replace the annual volume of transactions by a monthly journal, to be owned by the Faculty and to be managed on the highest ethical principles. At the same time an alternative proposition which had been submitted by the Maryland Medical Journal, proposing that this Journal would allot a certain number of pages to the publication of Faculty matters in return for the recognition of the Journal as the official medium of publication for the Faculty and the net sum of $100 per annum, was laid before the Faculty. The alternative proposition was accepted and a contract made with the Maryland Medical Journal for one year. I was then and am still opposed to the plan adopted. Tonight I believe I can say that the contract has not been satisfactory to either party. The Journal protests that it loses money by the deal. The Editorial Committee of the Faculty, for whom I am authorized to speak, objects to the advertising columns of the Journal, to the use of the Faculty's name in any way to endorse the business views of the Journal, and believes that the Faculty could do far better for its members by controlling absolutely its own publication. A properly-managed monthly bulletin would be invaluable as a means of inspiring and maintaining that feeling of fellowship which is so desirable, would enable us to

work together intelligently in times of need, and would convert the present heterogeneous mass into a working unit.

The question which will confront the House of Delegates this week is, Shall we renew the contract with the MARYLAND MEDICAL JOURNAL, provided it can be obtained on the same terms as for the year just closing; shall we publish our transactions in the form of a monthly pamphlet, without advertising matter, at the expense of the Faculty, or shall we begin the publication of such matter in a journal of our own which may be made self-supporting by the publication of satisfactory advertisements?

To contract with a journal under private control costs us now $100 a year, and I am told that the JOURNAL will ask an increase of this bonus to $500. It places us in a position where we are morally responsible for the inethical advertising of its business department; it gives us no voice whatever in the business policy of the JOURNAL, but compels us to stand before the profession of the nation as responsible, in a considerable measure, for the character of its publications.

Those of you who have been at all interested in the recent progress of professional organization must have noticed the great change that is taking place in medical journalism and the effect it has upon the relationship existing between these journals and the profession. Until a few years ago every medical journal in the country was owned and controlled by some commercial institution and run primarily for the benefit of such business interests. The recent disclosures made by the *Ladies' Home Journal, Collier's Weekly*, the Council on Pharmacy and Chemistry of the American Medical Association and a few medical journals that have been independent regarding the influence of the Proprietary Medicine Association upon the scientific as well as the lay press, have demonstrated very clearly our share of responsibility for the existing patent-medicine evil and the debauching of our own profession. We may set up the claim of ignorance or lack of consideration as an excuse for our past actions, but we can certainly no longer afford to support those medical journals which carry advertising matter declared by our Council of Pharmacy to be outside the pale of ethics. If we are going to fight the patent-medicine evil and the obnoxious products protected by the Proprietary Association, we must certainly refuse any share in the spoils. I question the possibility of making a satisfactory arrangement with any journal which is not directly and absolutely under our own control. A journal under private ownership will probably consider that it has a right to determine its own policy. Our policy demands that the journal which we recognize officially shall accept the rule of the Council on Pharmacy as the law governing its acceptance of advertising matter. Up to the present time such an agreement has not been made with any journal, and I look upon the possibility of an ethical scientific body and a commercial organization living harmoniously under the same cover as an extremely remote condition.

I have made an effort to ascertain the possible cost to the Faculty of issuing its own transactions in a monthly publication. A simple 12-page pamphlet (7x10 inches) without advertising matter could be issued at the cost of $300 per year. We formerly expended about $300 for the publication of our annual volume of transactions, and it is now costing the city society in the neighborhood of $100 for the issuance of announcements with the programs of its section meetings. We have, therefore, the right to calculate on the expenditure of approximately $400 per annum without taxing the treasury more than it has borne up to within the past year. The issuing of a simple pamphlet would consume this sum of money, which it is desirable to save if possible.

I have also secured estimates from several printing houses in the city, have consulted a thoroughly reliable advertising agent and reviewed the question from all points, and I am convinced that we could run our own journal without cost to the Faculty and without accepting any questionable advertisement. It seems to me there can be no doubt that this is the desirable thing to do, and the experience of 14 other States which are now successfully publishing their own journals teaches us that by the aid of advertisements a journal can be maintained without taxing the society if one page of advertisements can be obtained for two pages of other reading matter to be published. That is, to carry 24 pages of papers, proceedings, news items, etc., 12 pages of advertisements would be required, making a journal of 36 pages complete, which is about the size desirable for us.

One of the most reliable advertising agents in this city offers to take the contract to supply this amount of advertising for such a journal upon a commission basis, the character of advertisements to be absolutely under the control of the Council or an editorial committee appointed by the Faculty. I have here a dummy of such a journal as I have spoken of, and we have, after careful consideration, prepared a rate card for advertisements and calculated the probable income to be derived from this source. We believe that there is every reasonable assurance of securing a net income of $200 per month in this way.

The estimates for printing this journal vary from $75 per month to $130, so that even at the highest estimated cost we should have a balance quite sufficient to pay the necessary expenses of the editorial office, and there seems little danger of having to call upon the treasury for a cent of money. I have here the estimates and calculations to place before the House of Delegates if that body desires to consider the problem, but I will spare you a consideration of these details.

This Report was discussed by the House of Delegates and referred to the Council with power to act. As has already been announced, the arrangement with the Maryland Medical Journal *was continued.*

Society Reports.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD APRIL 2, 1906.

Report of Five Cases of Pneumonia Occurring in One Family.—Dr. Fabian reported for Dr. Thayer five cases of pneumonia in the colored ward during March of this year. There were two girls and three brothers, all from one family. Owing to the rather unusual occurrence of such groups of the disease, a careful study of the cases and the home conditions was made.

Among the etiological factors might be mentioned the house where the family lived. This is a dilapidated old wooden structure, near which is running dirty water. A privy is situated about 30 feet away. On the first floor of the house the two older girls of the family occupied one room until about three weeks before the outbreak of the disease, when they moved to the garret. There was great crowding in one of the rooms on the second floor, four persons occupying one bed, and two and three other beds. Some of the children had suffered from whooping cough a short time previous to the pneumonia outbreak.

The father stopped work one day, complaining of cough and weakness. There was no pain in the side. A few weeks later, March 14, one child was taken ill; three days later, March 17, a second child became ill; three days after this another child became sick, still another one day later, and still another three days later. The oldest daughter returned home at this time to assist the mother nurse the sick members of the family, but up to the present time they have both remained well.

There are no animal pets in the house, nor is there any illness in the neighboring factory. Second-hand blankets had been purchased and, after cleaning, had been used on the beds of the family. The nursing was all done by the mother, father and eldest daughter.

In the earlier cases the onset was sudden, with headache, epigastric pain and cough. Diarrhea was a constant feature in all but one of the cases. The first patient entered the hospital with the typical signs and symptoms of pneumonia. The pneumococcus was isolated from the blood in pure cultures. This patient died. At autopsy there was found a yellowish pleural exudate, the lungs contained firm areas, especially the upper lobes. There was a similar yellowish exudate in the abdominal cavity, with a general involvement and reddening of the abdominal and pelvic viscera.

The second patient entered the hospital with signs suggesting an effusion at the left base. The third patient presented signs of an involvement of the right upper lobe, the fourth patient signs of involvement of the right lower lobe. This patient is now up and about the ward. The fifth patient was the only one to have herpes. There was no Diazo reaction present in any of the cases.

The occurrence of these cases suggests contagion, though this is not abso-

lutely necessary. In 1885 Blyth called attention to the probable infectious nature of pneumonia. Epidemics have been reported at different times, epidemics of many hundred cases occurring in communities and having high mortalities. Dr. Osler has reported 10 cases in one family—cases of a very severe type of the disease.

Under the head of house infections there are records of as many as 32 cases occurring in one house in four years, and nine cases in another house in two years.

Still another group of cases reported are those in which house pets, especially parrots, played an important part in spreading the disease. Also certain articles from the sickroom have been known to carry infection. The bedding from the deathbed of a pneumonia patient, after being carried two miles, was placed on the bed of a child, who three days later took the disease.

To summarize this series of cases, there were nine persons living in one house, five of whom developed the disease. In four cases it was frank pneumonia; one case died and showed typical pneumococcus pneumonia, and clinically the disease is supposed to be the same in the other cases. The rooms in the house where the infections occurred were generally neat, and the sputum was well taken care of. All but one of the patients were predisposed by previous attacks of whooping cough. As a possible means of infection the blankets must be thought of.

Dr. Hurd mentioned an epidemic of pneumonia with a very great mortality that occurred in a penitentiary in Kentucky 20 years ago. In this outbreak there was no question but that the spread of the disease was due to bad sanitary conditions.

The Value, in Teaching Gynecology, of Demonstrating the Origin of its Pathological Physiology—Dr. Sampson. Skill in the art and technicalities of clinical medicine and an ability to judge disease according to biological principles are essential in medicine. The physician, through constant practice, can treat disease without understanding the basis for the treatment, and the pathologist can know the picture of a certain disease lesion without being able to treat the disease.

That normal physiology is the only course given to students is to be deplored, as the student has no knowledge of disease function. The relation of symptomatology to diagnosis overshadows all other factors. The students should be taught the relation between symptomatology and pathology.

The course to be described is one dealing with the relation between pathological physiology and pathological anatomy. It has been given in the third year and followed by the ward experience. Clinical gynecology is, then, the harvest of what has gone before.

Disease manifests itself by altered structure. Three essentials are necessary to understand disease—(1) changes in the tissues of the body, (2) normal anatomy, (3) normal physiology. In order to systematize, we may make the following classification, which is applicable to all parts of the body:

1. Congenital abnormalities.
2. Injuries and their results.
3. Infections and their sequele.
4. Tumors.
5. All other conditions.

Let us consider abnormal conditions of the uterus, for example. Take the first order of the classification—congenital abnormalities. By using modeling clay we are able to show how the fusion of the Müllerian ducts takes place, forming the uterus, adding more clay to represent the hypertrophy of that part forming the body of the organ. We may also show the formation of all stages of malformed uteir from the completely double uterus to the normal. The question then arises, How will these conditions affect function? They may or may not affect function, depending on formation.

Secondly, let us consider injuries and their results. These may be those resulting from (a) childbirth and (b) from other causes. Representing the uterus with this clay, this organ usually lies in the body in either an ante or a retroflexed position, and we must know its position if we would treat its conditions rationally. The commonest source of injuries to the uterus are associated with childbirth, especially with cases of criminal abortion. After childbirth a tear may cause the condition of everted cervix from a turning out of the upper and lower lips of that structure. Now the question arises, What will this do to the normal physiology? In the first place, the everted portion is not sensitive, so no pain can be caused from the condition itself, and we must therefore look further for the cause of the backache and pain present. Now the mucous membrane of the cervix is everted and exposed to the vaginal secretions, which cause a too free secretion of the cells of the cervix. Therefore, the natural treatment of the condition would be to repair the cervix, and thus prevent the too free secretion from its mucous membrane.

In a series of drawings Dr. Sampson showed sections of the adult and infant's pelvis. The difference in the relations of the various organs in the two ages was pointed out. In the adult pelvis it was shown the canals leading from structures within the pelvis outward all passed through the pelvic floor in an oblique direction, which arrangement gives strength, the muscular walls maintaining this oblique direction by drawing the external openings of the canals toward the symphysis. Any downward force exerted from above is met by the upward force of the pelvic floor.

Now, during childbirth the structures of the floor are pushed downward, the structures of the floor stretching and allowing the birth of the head. This does not occur, however, in too rapid or in an instrumental delivery, when this stretching may not take place. These conditions are entirely different to normal conditions, the rectum being pushed back and the vagina being more straight, so no push from below opposes that from above. To this lack of normal conditions is due the lack of support these patients complain of. Now, with a full bladder and rectum the straining will increase these conditions, as the downward pressure of the contents of the rectum pushes forward anterior to the anus and not outward in the direction of the axis of the anal opening. This condition causes, when the rectum is emptied, a rectocele, which may allow a gradual desensus of the uterus from relaxation of the ligamentous structures.

On the other hand, in a cystocele the desensus of the uterus accompanying the emptying of the bladder partially pushes down the wall of the bladder and shuts off the internal urethral orifice. This causes an increase of the cystocele, with the symptoms common to this condition.

Displacements of the uterus result from still another class of injuries, the ligaments holding the cervix in position and causing two flexions—the retroflexion pushing the cervix into the bladder and the fundus into the rectum, with accompanying modification of the physiologic functions of these parts.

In a complete tear of the perimeum straining is no longer present, so there is no further development of a rectocele or desensus of the uterus.

Therefore, the pathological physiology of organs depends upon the pathological anatomy. The treatment of these conditions varies with each condition present. If a canal possess an abnormal axis we must restore it to the normal, and, with retroversion, we must restore the parts to their normal positions and suspend to prevent the wedge action. Prophylaxis is the most important point of all in these conditions.

Omitting the consideration of the other divisions of the above classification, let us take up the subject of fibroid tumors of the uterus. These may be (a) subserous, (b) submucous, (c) interstitial, and tend to grow in the line of least resistance. These are apt to undergo pathological changes. A tumor is a perverted organ, and secondary pathological conditions may arise in perverted organs and be classified with altered physiology. These depend on the condition of the tumor, and let us consider first the submucous variety. Small submucous tumors alter but little if any the functions of the uterus. Even a larger one on the fundus will not necessarily interfere, but if it is of the anterior wall the fundus is pushed back, and if of the posterior wall labor is prevented. Hence the size, position and alterations of a tumor will influence function. A submucous myoma increases menstruation, alters the blood supply, interferes with conception and labor. At the menstrual periods there are pains like labor pains, due to the tumor sliding down and blocking the flow of the secretion.

Diagnosis should not be considered at the time when we are dealing with the pathological physiology and pathology of a part, though the treatment should be. When we come to consider the significance of symptoms we must take up the diagnosis.

Considering for a moment symmetrical abdominal tumors, the things one would naturally think of are (1) pregnancy, (2) myoma, (3) hematocele, (4) ovarian cyst and (5) distended bladder. In a like manner to that followed above should the causes and their effects be followed out in each of the latter conditions, as by this means alone can treatment be rationally carried out.

In this brief outline there have been suggested only a few of the many devices used in medical education to show how the pathological anatomy arises from normal anatomy and the consequences of those conditions. These methods have proved a great aid in rational diagnosis and treatment of cases.

Dr. Russell congratulated Dr. Sampson on his methods and said they were applicable not only to gynecology, but to all surgery. Gynecology is so exploited from the surgical side that we are apt to neglect the clinical side entirely.

Metaplastic Bone Formation—Dr. Bunting. This communication is of no particular practical but of much theoretical and biological interest.

The specimen is a very sclerotic aorta from a man aged 72 years. The

patient had an enlarged prostate, and before operation had died of bronchopneumonia. The aorta was a rigid tube just above the bifurcation, the intima being a half dozen times as thick as the media, which was hyaline, and presented on its inner surface a layer of calcification. In the neighborhood of a thinner part of the media a small artery broke through, accompanied by granulation tissue representing an old inflammatory process. A ring of bone with its vessels and marrow cavity was found in the edge of this area, and near this were found two other plates of the same material.

Now, in the larynx and the meninges of man it is not uncommon to find bone in old people. It is rare, however, to find it in other localities, and especially so in this locality. There have been five cases reported of this kind, and they are hard to explain. In addition, there have been reported some twenty cases in smaller vessels and a half dozen cases in the valves of the heart.

It was first thought that the Cohenheim displacement theory might explain these cases, but this is ruled out by (1) their frequency, by (2) the finding of such points in 43 of 47 calcified tuberculous nodules in lymph glands, and (3) finally by the experimental evidence of several men, (a) incinerated bone ash in the peritoneal cavity causing the formation of bone and (b) interfering with the circulation of the kidney allowed deposition of calcium salts in the tubules in from four to six weeks.

The process with which we are dealing is, therefore, a true metaplasia, with the following steps: Deposit of the calcium salts, from a chemical influence of the calcium salts on the young granulation tissue, the union of the two causing bone formation.

The formation of the granulation tissue is thought to be due to rupture of the calcified plates. It is formed, first, therefore, by the production of a callus—an osteoid membrane later converted into bone; second, in the greater number of cases it is formed as at the epiphysis—by an erosion of the membrane by osteoclasts and a growth of a vascular membrane with the formation of osteoclasts. The remarkable part of the process is that this senile tissue still retains the power of differentiating into formative cells, no doubt due to a chemic influence still operative late in life.

Another point of interest is the foci of true red cellular marrow between the plates of bone off to one side. These contain all the cells of true bone marrow. This structure likewise has been found in some other organs, so we may rule out Cohenheim's theory of displacement. Now, as it is commonest in pathology to have a single process operative throughout, we may suppose a metaplasia to be the cause again of this finding.

It seems a much shorter step from the fixed connective tissue cell to the osteoclast cell than through the steps of the cells contained in the blood, and it seems here as though we have had change of the fixed connective tissue elements. If this be a true case of metaplasia we have the condition of all types of marrow cells derived from one type, probably from an indifferent lymphoid cell capable of development into almost any type of cell. Such a cell could develop into (a) leucocytes in pneumonia where a sudden call for this type is made, (b) into cells required in the blood in an anemia, (c) in typhoid fever these would develop into lymphoid bone marrow. This idea is steadily gaining ground, as opposed to the Ehrlich idea of the distinction of cells in adult life.

The cells from which these types may develop are, therefore, indifferent connective tissue cells, probably myelogenous in origin.

MEETING HELD MAY 7, 1906.

Loco Disease in the West—Dr. Marshall.—In the fall of 1903 I formed one of a party sent out by the Department of Agriculture to investigate the loco disease in the West. This trip was followed the year afterwards by another of a similar nature, and, to be brief, I will summarize the two reports made out for the trips.

Those from west of Kansas know that one of the greatest industries of the West is the grazing of immense bands of live-stock over natural pasture lands. The rainfall is slight, and there is little, if any, artificial cultivation; hence there are many miles of land given over to this natural pasturage. Many years ago this region was very prosperous, the industry beginning in the southwestern part of the United States and extending northward over the whole of the available grazing lands. These were in the days of the cattle and the sheep kings, who allowed immense bands of animals to roam free and graze.

Soon, however, diseases began to make their appearance among the bands and baffled all efforts to find out their cause. Among these diseases is one—the loco disease—which formed the subject of my investigations.

The loco-weed disease, or crazy disease, affects all live-stock. In some areas or regions the sheep will be the animals affected, in other regions it will be the cattle which are most prominently affected, while in still other regions the horses will show the most marked symptoms of this disease. In certain smaller areas there were numbers of Angora goats raised, and these were also affected. This disease became a very disastrous plague to the stockman throughout the West.

The loco disease was always held to be due to a plant growing on the mountain-side—the loco weed. When animals eat of this weed it was thought to have a most remarkable effect upon them, and it is a very romantic chapter in the history of that region to trace all the effects described to this weed.

The facts of the case, however, show that the loss from this disease is a very serious one, and one that is apparently growing worse and worse, 15 to 30 per cent. of the new stock dying of this disease. The disease is worse in some places at certain times than at or in other places, but it follows no definite rule as regards its distribution or severity.

The loco disease began in Mexico, and the name is the term for crazy in that language. It spread through California northward and westward to Missouri, finally, only 15 years ago, reaching Montana. The plant is very widely distributed, and there are a number of varieties with different colored flowers—red, blue, and white—occurring in great abundance. It is a member of the bean or pea family.

Attempts have been made to produce the disease in a variety of animals by feeding the plant or by administering extracts obtained from it. These experiments have been practically negative.

The above are, in brief, about the only facts obtainable in regard to the action and effects of this plant, or were at the time these investigations were undertaken. Some other factors were learned by much questioning, such

as, first, age, the young animals being the ones always affected, and never the old ones, unless these have been previously affected; second, an abundance of good food and plenty of salt will prevent the appearance of the disease among the stock; third, lowered vitality seemed to be the chief factor in the spread of the disease. As regards the distribution of the disease, it extends from Mexico to Montana and from California to Missouri.

The symptoms ascribed to this disease are very fanciful and varied if we may believe the reports of the ranchers. If we take as characteristic of the disease those symptoms chosen from the middle, between the two extremes of report, an animal affected with the loco disease is very erratic, becomes scrawny, rough-coated, the head is held rigidly up in the air, the eyes are rolled in the orbits and lose their power to accommodate, the animal then walking into trees or any other obstruction, and instead of avoiding the obstruction, butting into it until it dies. During this time the animal eats nothing but the loco weed, and it will leave the water and good pastures for the dry ground where this weed grows. Death, unless the animal kills itself by violence, usually ensues within a few months from exhaustion or some intercurrent disease.

As regards the morbid anatomy of the disease, nothing practically had been found.

Turning now to my own work, I went to a great many different places in order to see cases of the disease, and from them build up a symptomatology and perform autopsies and experiments.

First as regards the morbid anatomy as found in the autopsies I performed: In one band of 5000 sheep there were 150 cases. A lamb five months old was pointed out as being typically ill with this disease. It was 20 pounds under weight, scrawny, weak, and nearly blind. On examination after killing this patient a meningitis was found and a subdural abscess at the base of the brain. This intracranial condition could well explain all of the symptoms noted in this particular case.

The finding of some gross lesion at this time was against all the prevailing ideas, and bets were made that the same could not be found again in other animals. A second lamb was killed and the liver found to be converted into a series of abscess sacs and the stomach full of parasites. To be brief, in all of the autopsies made it was found that the animals were suffering from some form of parasitic disease, among the commonest being the ordinary wireworm of the stomach, the tapeworm that wanders into the liver, the worm causing bronchopneumonia in sheep, and one or two others.

The following summer the same results were obtained, more parasites being found—in fact, parasites were evidently the cause of the disease in every case.

A series of experiments performed the second summer are of some interest. The object of these experiments was to determine whether sheep may be poisoned by the loco weed, what are the signs and symptoms of a case so poisoned, how soon the symptoms came on, the diet preferred by the sick animal, and the importance of various factors.

The animals used were 45 yearlings and 19 lambs. These were staked out in corrals containing from five to ten animals each and fed in a variety of manners, careful notes being kept as to their conditions. By varying the diet throughout the series of corrals all grades of food, from plenty of good

and healthful fodder and salt with no loco weed to a diet consisting mainly of this weed, could be given. The entire experiment was kept going during two months and the animals watched every day.

At the end of three days it was noticed that those animals that were receiving even only one-half rations of hay did not eat loco weed, although it was offered them, while those with no hay at all ate the loco for food, and when they had once eaten it they preferred it to good food. However, no change was noted in the conditions of these animals eating loco even after a sudden stoppage or as sudden a renewal of the weed.

After the experiment had proceeded for about three weeks there was a sudden interruption. The animals were losing weight and had become below par, and were infected with the sheep-fly disease. Every one of those infected with this parasitic disease exhibited typical signs of the loco disease. By feeding all the animals with good hay the sick ones began promptly to recover, so that by the end of eight days the experiment could be resumed. The experiment was not interrupted again until the end of the season, when it was found that all of this band of sheep was in poorer condition than the original band. This was readily explained, though, by the changed conditions which the location of the experimenting ground made necessary, the original band being kept on the higher, cooler places, while the plain where the experiment was carried out was hot and dry.

Probably the most striking fact obtained was that the band of sheep which had received loco weed to graze upon in addition to one-half rations did better than the band which received half-rations alone.

The animals thought to be locoed in a typical manner as observed by the ranchmen showed at autopsy enormous quantities of the sheep-fly larvae. This fly deposits its larvae in the nose of the sheep, and they spread thence to the sinuses and to the base of the brain. In only the sheep that were below par did the infection produce the locoed state, and in healthy sheep the fly could produce only a rhinitis, followed by recovery. In the sheep on half-rations the fly infection was more severe than in the strong sheep, while in the sheep that had had no rations the fly set up a condition which killed the sheep, the symptoms having been typical of loco-weed disease.

In this series of animals those which received hay and loco weed as food did the best, while those that received hay alone did next best. The gain or loss in weight was proportionate to the amount of food the animals received. The sheep receiving no salt with their food gained more in weight than those which received salt, and the loco weed had no effect on the animals if they had enough food.

In a general summary it was made out, therefore, first, sheep will not eat loco weed if they have plenty of food; second, they can be made to eat it, however; third, they will not eat loco weed alone, and fourth, the loco weed produces no symptoms. The loco weed has a very poor food value.

A more final summary of the work of both summers, 1903 and 1904, leads us to the conclusions that locoed animals are suffering from a variety of diseases, which diseases are the result of an insufficient supply of food, and secondly, to a group of parasitic diseases. The loco disease is commoner in the younger animals, and it is these that the parasitic diseases also affect. The loco weed may be acquitted of the charges that have been brought against it.

Dr. Hurd said that the word "rattled" possesses its significance from the fact that it means the old wind-blown loco weeds.

Dr. MacCallum asked if there was any definite symptom complex to this disease, is it a nervous disease, and is it possible for other parasites to cause nervous symptoms.

Dr. Marshall replied that there was no definite symptom complex, as any animal if sick and west of Kansas was locoed. The symptoms of the disease are decidedly nervous, weakness, however, being the principal one. The parasitic diseases produced great emaciation in the animals affected, and were themselves allowed to be set up by reason of a primary emaciation, due to lack of proper food.

Exhibition of Medical Cases—Dr. Emerson.—The first patient is a man, aged 28 years, who has been in this hospital four times, the first admission being five years ago. His personal history is negative, except for the fact that some years ago he made a voyage to the West Indies as a sailor. For five years the patient has been suffering from a severe anemia, with an oligocythemia of 1,000,000 and a color index of about one. The leucocyte-count is normal, and there are no nucleated red cells.

At no time have the blood-counts been over 1,500,000 cells, and this case is of interest in showing the independence of the blood-count to the symptoms, although the count is no higher than it was on admission. The patient feels well and is ready to go home. This independence of the blood-count to the symptoms has been a striking feature of our series of cases in this hospital.

The first symptom for which this patient was admitted was blood in the urine. This was not blood, however, but hemoglobin, which would be present in the urine for a few weeks, clear up entirely, and later reappear. The hemoglobinuria in this case is of particular interest in that it would be present from 1 o'clock in the morning until 9 o'clock and disappear during the rest of the day. Examination with the cystoscope showed the red urine coming only from the right kidney, the condition being one of unilateral paroxysmal hemoglobinuria. The patient has a pulsating mass in the left side. The diagnosis has not been made in this case.

The second case is a man, aged 50 years, who has worked as a tobacco-seller. He came in complaining of weakness and swelling of the legs. His personal history is negative, his habits good. The patient led an active life up to one month ago. Associated with the weakness there has been shortness of breath and pigmentation of the skin.

On admission there was found a marked condition of vagabond's disease, the pigmentation being general over the body. However, in addition to this body pigmentation, there was definite pigmenting of the mucous membranes of the mouth. The blood pressure is low—60 to 80 mm. of mercury.

The question arose as to whether the pigmentation was due entirely to the body louse or to Addison's disease in addition. In favor of the latter is a positive tuberculin reaction, low blood pressure, weakness, all of which point rather strongly to Addison's disease, though there has been no gastric or muscular irritability.

Case 3 is that of a colored woman, aged 35, who came in complaining of drawing up of the hands—a case of tetany. The family history is suggestive of the same disease in one brother, he having died at 34 years of age with spasms of the same nature as complained of by this patient. The patient's personal history is negative as regards gastrointestinal symptoms, positive as regards pelvic and genitourinary troubles.

The present illness began four months ago, at which time the patient was ill in bed for one week. Two months later she had her first attack of tetany

in the wrists and fingers. Since her admission the spasms have been limited to the fingers and hands.

The patient has no enlargement of the stomach, though there is almost total anacidity. There is a definite chronic nephritis. It would therefore appear that cases of tetany may occur without dilatation of the stomach, but with anacidity.

The Relation of Various Strains of Dysentery Bacilli to the Diarrheas of Infancy—Dr. Knox.—The association of a definite organism with this complaint has been definitely shown, though investigations have been scattered and no one series has been followed thoroughly. Therefore the present complete investigation of a series of cases was undertaken. Seventy-four cases in all were studied, the series comprising several clinical varieties of the disease—(a) Toxic cases, with fever and an acute onset; (b) Cases with the evidence (either clinical or post-mortem) of definite inflammatory changes in the intestine in addition to the symptoms of Group A. Of the first variety there were 36 cases out of the total 74, and of the second or inflammatory type there were 29 cases. A third and smaller group of cases were termed cases of intestinal indigestion.

The methods of getting cultures were two—from the stools by selecting the bits of mucus and washing these in salt solution before taking cultures, and secondly, by scraping the intestine at autopsy. In our series the cases showing blood were 30, and 31 showed purulent material in the stools. The dysentery organism was found more readily when there was pus present—in 93 per cent. of the cases with pus—while in 22 per cent. of the cases studied the organism was found at autopsy and had not been demonstrated during life. Altogether there were 300 isolations made.

The organisms isolated were as follows: In 6 cases streptococci in pure cultures; streptococci were present in 11 other cases; in 2 cases colon bacilli were present alone; in 2 cases pyocyaneus alone, which organism agglutinated with the blood of the patients. There were two cases with more or less extensive pseudomembranes, one of which yielded a pure culture of the dysentery bacillus immediately, while the other only after a severe search. All the cultures fell into one or another of the four groups of bacilli described for this condition. The commonest found was the Y bacillus, then the Flexner, and next the form of Strong and Harris. The agglutination reactions were tested as a routine, with mixtures and with the patient's blood, though with varying success, and the serum reaction cannot play as important a part in the diagnosis of this disease as it does in the case of typhoid fever. Experiments showed that the Flexner-Harris serum had the largest amount of common agglutinins, the other forms possessing less, though all forms possessed some common agglutinin.

The largest number of cases associated with any one form of bacillus was 14, in which the Y form was found. Many of this group were very ill, and five were admitted in partial collapse. Many were also very young—under one month old on admission. Six cases were found infected with the Flexner-Harris organism, the cases presenting widely different symptoms. Of these latter six cases four recovered and two died. There were 13 cases with mixed dysentery-bacilli infection, and all of these were very severe cases. There were 11 cases of definite ulcerative colitis and one of tuberculous colitis—a double infection. Of these cases which were admitted late in the summer the stools were mucopurulent and blood-stained; nine died and seven were autopsied, showing an ulcerative ileocolitis in all cases.

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JOHN S. FULTON, M.D., *Editor.*

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BALTIMORE, SEPTEMBER, 1906

THE CURRENT TYPHOID SEASON AND THE MILK SUPPLY.

At the conclusion of the milk campaign in May the debts incurred and unprovided for seemed more important than the profits which could, at that time, be foreseen. Since then the debt has not materially diminished, but profits are now apparent. During that campaign no special emphasis was laid on the transmission of typhoid by milk. An epidemic clearly due to infected milk was in process of incubation during the course of lectures, and its dramatic manifestations came appropriately at the end of the milk exhibition. The regular typhoid season followed, and has not transgressed the scandalous bounds which are said to be "normal." At the end of the year the usual number, 500 victims of typhoid fever, will be counted among the dead, and some 6000 persons, having weathered their attacks, will count typhoid fever among their interesting adventures. Perhaps 2000 others will be disabled by the Eberth bacillus, and will recover without having discovered the name or nature of their illness.

Typhoid fever is epidemic in Maryland every year; that is the "normal" course of events. If all the typhoid fever of a year should happen in one week the shock would be appalling. Such a situation would tax the physicians and nurses of Maryland very heavily, and we should take the true measure of this preventable plague. Perhaps, after such an experience we should undertake its prophylaxis. But while the ghastly collections are made piecemeal, we repeat the comfortable, illusive formulae about the "normal" incidence of typhoid. Times are mending, however. The medical diagnosis of typhoid fever has improved very much in recent years, and in all parts of the State medical men have learned that the history of an attack of typhoid fever ought to be traced back to its time and mode of entry into the patient's body. The free facilities offered by the health authorities for the investigation of water supplies are now largely employed, and in the course of time we shall perhaps find that the annual visitations of typhoid, which we shall continue to speak of as "normal," are really diminishing amounts; that we have been sharpening our wits and counting better than we formerly did.

During the present season milk has been brought under suspicion in connection with numerous outbreaks. The existence of typhoid fever on dairy farms has excited most unusual interest. The characteristics of milk-borne typhoid are fairly definite, but not generally known. Milk has not been clearly convicted in many instances, but it is a very hopeful circumstance that the inquiry about the causation of typhoid fever has been broadened in this way. If the profits in the restriction of typhoid fever are not very large, there will be ample reward in the engendered interest in the conditions under which milk is produced and marketed. If it is but rarely possible to

prove the agency of milk in the transmission of typhoid fever, that disappointment will be more than compensated by the prevention of other mischief, quite as serious and more widespread, through the agency of milk.

Dr. Thayer's article in this issue is most timely, showing, as it does, that the real center of combat is not in the watershed, nor in the dairy farms, nor even in the health office, but in the sickroom and in the hands of the physician and nurse. Cities must plan elaborate defenses of their watersheds, and the necessity of these defenses is easiest measured by the typhoid rate. Cities must control their milk supplies, and the value of this work will be measured best in the infant mortality. But typhoid fever and infantile diarrhea are not the sole or sufficient reasons for these large sanitary operations, nor would these works be unnecessary with the complete conquest of typhoid fever and infantile diarrhea. It is the crowning success of sanitary works to uncover the more recondite sources of disease, and these we should find, in the case of typhoid fever, in the rural districts and beyond the reach of strong sanitary organizations.

The control of typhoid fever, whether in town or country, can be most easily and most cheaply accomplished at the bedside. The requisites are fly screens, disinfectants, brains and clean hands. If these were present at the bedsides of but three-fourths of the cases of typhoid fever, the results would excel all that has been done by the monumental sanitary works of modern cities. No one need be restrained for a moment by the consideration that many cases of typhoid escape diagnosis, or that many others never come under medical observation, or that a few persons who have not typhoid fever, nevertheless distribute the disease. Typhoid is not to be vanquished at one blow with a heavy weapon, but it may be crumbled to insignificance if it is vigorously attacked with the light and handy tools available at every time and place of its appearance.

THE MOSQUITOES OF MARYLAND.

While the passing season has produced only a "normal" crop of typhoid fever, the crop of mosquitoes has surpassed "normal" expectation. The weather conditions have been unusually favorable to the propagation of these little pests, and in many parts of the United States 1906 will be memorable as a mosquito year. The people of Maryland have shared in this abundance, and perhaps will profit by it. Last autumn an effort was made to arouse public sentiment on this subject and to secure an appropriation for an experimental campaign against mosquitoes in a small section of Baltimore city. Those who urged this project have now double reason to regret that the appropriation was refused, for a successful campaign, even on so small a scale, would have been far more impressive this year than in a "normal" year. It is quite safe to say that the mosquito is now a declared candidate for political distinction, and no longer to be ignored. The visitation of 1906 is most timely. Whatever is said or printed by competent persons about mosquitoes is just now of interest to the people of Maryland. It is therefore fortunate that the Maryland Agricultural Experimental Station has published, under date of May, 1906, an excellent bulletin on "The Mosquito." The authors of this pamphlet are Thomas B. Symons, T. H. Coffin and A. B. Gahan. The bulletin is said to be preliminary to a fuller report on the mosquitoes of Maryland. It is said that fifty species are likely to be found in this State. Twenty-two species are described as found during the

summer of 1905. As the greater part of last year's work was done in and around Baltimore, 22 species may be taken as the number likely to be found in this city during a normal mosquito year. The photographic illustrations, 16 in number, form an interesting appendix to this bulletin. The legends under these pictures would make a touring Baltimorean homesick. No other spot on earth could stay his homeward progress urged by these intimate and alluring memoranda about Cold Spring lane, Roland Park, River View, Spring Gardens, and other scenes of fond recollection. This bulletin should be widely distributed. It is Bulletin No. 109, and may be had for the asking.

THE MEDICAL EXAMINING BOARD ON PRELIMINARY TRAINING.

In the Report of the Medical Examining Board, printed elsewhere in this issue, one finds some interesting examples of the kind of examination papers which do not score well for the unfortunate examinees. Literature of this sort is always entertaining. This report is sure to be widely read, but it will not be widely discussed, at least in public. There is, however, quite a group of medical men who think that crudity of expression and bad spelling should not count at all in determining the fitness of a candidate for license to practice medicine. This group is the forlorn remnant of a very large body of men who 25 years ago held the same opinion. In that day there were no real intellectual requirements for entry upon the study of medicine. To pay the price and to write one's name without exceeding laboriousness completed the formalities of becoming an entered apprentice, and from this point to the doctor's degree there was not one obstacle as formidable as a simple exercise in long division. Hardly any experience could be more shocking to an educated youth than the company in which he found himself beginning the study of medicine 25 or 30 years ago. In any average medical school the best students and the worst were as far apart as zenith and nadir. The men might have been divided sharply into two groups, the unteachable and the untaught. But times have changed. A young man can begin the study of medicine nowadays without risk of subverting all his ideas of the value of intellectual toil. The average medical class of today is much better, and, remembering the earlier days, one might almost say that the average modern student is fit to be taught medicine.

But there yet survive a few men who believe that a very moderate, not to say inferior, amount of preliminary training will suffice for a medical student. Not very rarely one hears some medical teacher say that bad capitalization, punctuation and spelling should not count in medical examinations. But these deficiencies do count heavily against a man professionally, and before the public, and in his own self-esteem. A physician may describe himself or his patient as a "wight" man. There are such physicians in Maryland. Such a man may be a member of his county society and of the faculty, but beyond his vote nothing of value will accrue to him. He may practice—if he makes a living he must practice—among ignorant people, or in a community where there is no educated physician. He must, in fact, isolate himself from education, from culture and from much of comfort. The Medical Examining Board has done well to furnish us these proofs that the schools are insufficient barriers between ignorant young men and the dismal lot of the ignorant, incompetent medical man.

Summary of Results of Examination Held by the Board of Medical Examiners of Maryland, June 20, 21, 22 and 23, 1906.

No.	College of Graduation.	Anatomy	Surgery	Pathology	Obstetrics	Practice	Chemistry	Materia Medica	Therapeutics	Physiology	Total	Average
1												
2	University of Leinberg, Austria, '02	88	100	92	80	90	98	82	90	95	815	90
3	Baltimore Medical, '06	75	80	57	90	79	49	90	80	75	675	75
4	Maryland Medical, '05	48	..	22			28		77	78		
5	Baltimore Medical, '06	89	90	62	95	77	60	81	78	100	732	81
6	University of Maryland, '06	90	95	90	100	79	85	83	88	95	805	89
7	University of Maryland, '06	80	90	66	85	82	76	78	88	81	726	80
8	University of Maryland, '02	..	..	44	..	..	..	..	..	..	..	..
9	College of Physicians and Surgeons, '06	90	95	93	80	80	30	76	92	90	726	80
10	University of Maryland, '06	81	90	77	85	85	20	83	93	87	701	77
11	University of Maryland, '06	88	95	92	100	88	40	68	92	92	757	84
12	George Washington University, '05	71	85	64	100	80	90	79	87	93	769	85
13	Baltimore Medical, '06	56	90	92	90	81	50	73	92	95	719	79
14	Baltimore Medical, '06	97	98	88	90	89	75	73	95	100	805	89
15	Johns Hopkins, '06	83	90	94	85	92	95	84	90	90	803	89
16	Baltimore Medical, '06	84	80	75	90	75	60	70	93	85	712	79
17	Johns Hopkins, '06	92	90	91	90	99	85	93	92	95	822	91
18	Baltimore Medical, '06	76	90	84	80	82	25	60	85	93	675	75
19	University of Maryland, '05	49	..	18	..	61	30	..	..	63	..	..
20		44	..	..	..	..	37	78	..	98	825	91
21	University of Maryland, '06	93	90	92	100	88	86	86	92	75	650	72
22	University of Maryland, '06	82	95	62	85	75	34	65	77	97	746	82
23	University of Maryland, '06	78	95	78	90	87	58	79	84	97	790	87
24	University of Maryland, '06	79	95	85	100	86	88	78	82	97	849	94
25	University of Maryland, '06	91	98	96	100	89	93	94	93	95	751	83
26	University of Maryland, '06	77	85	88	90	77	77	85	88	84	720	80
27	Baltimore Medical, '06	73	80	89	90	83	45	77	86	97	743	82
28	University of Maryland, '06	73	85	83	80	75	84	78	85	90	803	89
29	Johns Hopkins, '99	89	95	96	95	97	91	87	90	100	840	93
30	Johns Hopkins, '06	78	90	92	100	90	76	92	88	96	802	89
31	College of Physicians and Surgeons, '06	91	90	82	90	89	93	93	90	100	818	90
32	College of Physicians and Surgeons, '06	91	90	86	80	88	50	68	81	83	717	79
33		94	..	..	..	..	85	90	..	98	..	..
34	Baltimore Medical, '06	96	90	98	100	97	85	81	94	100	841	93
35	University of Maryland, '06	78	90	70	90	75	52	84	76	80	695	77
36	College of Physicians and Surgeons, '06	75	80	77	85	79	79	89	75	88	727	80
37	Baltimore Medical, '06	88	90	91	90	90	90	92	88	87	806	89
38	Baltimore Medical, '06	84	95	99	100	95	95	97	97	98	851	94
39	Johns Hopkins, '06	91	95	84	85	83	76	82	85	89	770	85
40	University of Maryland, '06	90	92	87	100	81	81	78	85	90	784	87
41	Maryland Medical, '05	51	50	14	75	64	11	..	..	84	..	..
42	University of Maryland, '05	76	..	12	..	58	59	..	..	65	..	..
43	University of Maryland, '06	94	90	80	90	78	84	87	90	97	790	87
44	University of Maryland, '06	62	90	57	95	75	33	71	69	90	642	71
45	Johns Hopkins, '06	90	95	96	100	93	94	92	95	100	855	95
46		..	..	..	..	..	..	..	..	..	..	..
47	University of Maryland, '06	76	80	69	100	83	68	83	78	80	717	79
48		96					84	78		83		
49	University of Maryland, '05	56	90	76	90	75	59	74	87	68	675	75
50	University of Maryland, '06	91	94	94	85	89	88	69	73	83	766	85
51		73	..	..	..	..	85	85	..	92	..	..
52	College of Physicians and Surgeons, '06	87	75	68	80	81	60	75	77	90	693	77
53	George Washington University, '06	87	78	78	90	86	75	75	75	82	726	80
54		75	..	..	..	..	79	97		85	..	..
55	Georgetown University, '04	81	..	67	..	..	57	82	75	..	..	..
56	University of Maryland, '06	80	95	68	90	83	71	93	94	85	759	84
57	University of Maryland, '06	88	92	88	90	80	78	88	90	81	775	87
58	University of Maryland, '06	88	90	57	80	75	48	80	82	75	675	75
59	Baltimore Medical, '06	50	80	27	75	66	58	87	80	88	589	65
60	University of Virginia, '06	68	98	75	85	86	75	80	90	78	735	81
61	George Washington University, '06	75	85	60	85	78	75	65	69	83	675	75
62	Jefferson Medical, '04	75	90	75	85	79	76	93	80	77	730	81
63	Baltimore University, '02	41	80	41	..	75	60	83	..	..	..	..
64	Baltimore Medical, '06	81	90	93	85	78	88	71	80	98	764	84
65	University of Maryland, '06	79	95	76	100	69	49	79	87	60	694	77
66		91	..	..	..	..	80	84	..	95	..	..
67	Jefferson Medical, '06	68	75	52	80	81	76	79	81	63	655	72
68		75	..	..	..	..	62	80	..	82	..	..
69	University of Maryland, '06	88	80	78	90	83	45	72	90	81	707	78
70		89	..	..	..	..	75	80	..	75	..	..
71		93	..	..	..	..	84	84	..	95	..	..
72		72	..	..	..	..	..	76	..	93	..	..
73		79	..	..	..	..	75	84	..	75	..	..
74	Johns Hopkins, '06	92	80	89	84	84	94	90	90	96	799	88
75	Maryland Medical, '05	75		62			49					
76	Long Island College, New York, '05	72	85	30	75	63	65	31	75	69	565	62
77	Johns Hopkins, '06	66	85	97	75	92	91	80	95	95	776	86
78	Md. Medical, '06	48	50	59	75	77	25	87	67	84	572	63

Summary of Results of Examination Held by the Board of Medical Examiners of Maryland, June 20, 21, 22 and 23, 1906—(*Continued.*)

No.	College of Graduation.	Anatomy	Surgery	Pathology	Obstetrics	Practice	Chemistry	Materia Medica	Therapeutics	Physiology	Total	Average
79	Baltimore University, '06	15	..	49	..	56	26	75	73	66	..	..
80	Maryland Medical, '06	39	72	32	80	75	20	77	80	68	543	60
81		75	..	..	..	..	78	58	..	75	..	..
82	Maryland Medical, '05	22	40	26	86	49	12	45	46	81	401	44
83	Jefferson Medical College, '06	63	75	56	90	77	42	69	78	68	617	68
84		65	..	..	..	..	88	94	..	89	..	..
85	University of Maryland, '06	69	80	78	90	70	45	79	83	81	675	75
86	Maryland Medical, '05	..	78	45	..	..	71	..	..	..	..	..
87	Maryland Medical, '05	..	..	23	..	..	21	..	..	..	..	..
88	Johns Hopkins, '06	92	96	97	90	92	96	89	97	96	845	93
89	Johns Hopkins, '06	89	85	98	90	93	96	87	90	98	726	80
90	Maryland Medical, '05	65	..	59	..	..	51	77	78	..	..	..
91	College of Physicians and Surgeons, '06	50	70	54	75	67	38	69	67	63	553	61
92	University of Maryland, '06	58	85	71	85	75	48	71	77	85	655	72
93	Johns Hopkins, '06	91	95	90	80	90	94	95	95	96	826	91
94	University of Maryland, '06	75	85	28	75	75	19	74	77	67	575	63
95	University of Maryland, '06	79	90	76	65	80	50	78	82	75	675	75
96		75	..	..	..	..	58	70	..	77	..	..
97	University of Maryland, '06	61	75	67	90	70	48	68	82	70	631	70
98	University of Maryland, '06	80	90	88	75	76	91	90	92	91	753	83
99		96	..	..	..	..	76	84	..	90	..	..
100		94	..	..	..	..	99	90	..	90	..	..
101		79	..	..	..	..	50	88	..	97	..	..
102		71	..	..	..	..	46	85	..	68	..	..
103		90	..	..	..	..	76	78	..	91	..	..
104	Maryland Medical, '06	71	85	61	90	81	77	82	85	66	698	77
105	Baltimore Medical, '06	55	75	55	75	65	20	62	65	60	532	58
106	Baltimore Medical, '06	75	85	75	90	87	64	92	93	93	754	83
107	Maryland Medical, '05	..	..	75	..	75	75	..	..	..	..	..
108	Maryland Medical, '05	..	..	..	..	..	75	..	..	..	..	..
109	University of Maryland, '04	..	..	24	..	..	43	55	74	90	..	..
110	Baltimore Medical, '06	81	70	53	85	84	30	68	79	80	640	71
111	Jefferson Medical College, '06	65	80	59	80	76	45	78	78	79	640	71
112	University of Maryland, '06	70	75	75	90	75	51	79	85	75	675	75
113		26	..	..	..	..	14	80	..	..	..	..
114	George Washington University, '06	78	80	85	85	86	84	88	85	88	759	84
115	University of Maryland, '06	78	80	81	95	75	75	77	82	87	710	78
116		81	..	..	..	..	85	90	..	94	..	..
117		78	..	..	..	..	..	74	..	88	..	..
118		..	..	..	..	..	..	..	..	..	..	..
119	Jefferson Medical, '06	87	95	75	90	88	75	90	75	88	765	85
120	Maryland Medical, '06	73	65	68	75	61	58	83	80	75	638	70
121	Johns Hopkins, '06	88	100	92	90	90	80	90	92	100	822	91
122	Maryland Medical, '05	24	..	36	..	..	..	..	..	..	..	..
123	University of Maryland, '06	87	98	85	100	78	85	85	92	100	810	90
124		..	..	..	..	..	..	..	..	..	..	..
125	University of Maryland, '06	90	85	94	85	88	60	76	95	85	758	84
126	University of Maryland, '06	89	90	78	90	84	75	85	90	80	761	83
127	University of Maryland, '06	89	90	90	100	93	80	88	95	85	810	90
128	Johns Hopkins, '06	79	95	98	95	92	84	87	93	98	821	91
129	Maryland Medical, '04	..	..	57	75	57	40	82	76	..	..	..
130	Maryland Medical, '05	44	..	17	..	..	42	68	79	71	..	..
131	Baltimore Medical, '06	67	75	69	90	77	50	80	78	70	676	75
132		79	..	..	..	..	96	88	..	87	..	..
133	University of Maryland, '03	..	..	58	..	63	49	..	..	..	..	..
134	Baltimore Medical, '06	30	70	56	90	77	38	77	75	80	593	65
135	University of Maryland, '01	..	..	45	85	69	64	..	..	..	..	..
136	University of Maryland, '05	69	..	..	..	..	54	..	..	..	..	..
137	Johns Hopkins, '06	81	95	96	90	97	89	87	95	98	828	92
138	University of Maryland, '04	53	..	61	..	..	78	..	..	..	..	..
139	University of Maryland, '06	80	85	53	90	90	30	79	93	75	675	75
140	University of Maryland, '06	92	95	97	100	85	75	91	88	95	818	90
141		76	..	..	..	..	65	64	..	80	..	..
142	University of Maryland, '06	87	95	95	75	91	85	74	77	97	779	86
143	College of Physicians and Surgeons, '06	39	75	37	95	69	65	75	85	75	615	68
144	Johns Hopkins, '06	96	95	96	90	93	50	85	85	95	785	83
145	University of Maryland, '06	74	95	81	95	75	78	89	92	87	766	85
146	Ohio Medical University, '03	67	..	20	..	..	38	..	..	..	..	..
147		..	..	..	..	..	..	..	..	..	..	..
148	University of Maryland, '04	..	..	63	..	..	44	..	..	..	..	..
149	Johns Hopkins, '06	91	100	96	84	85	65	68	93	96	778	86
150	University of Maryland, '05	..	..	59	..	69	42	69	73	..	..	..

In the above summary an average of 75 is required of those participating in the examination for the first time in order to secure a license. Those who have failed are eligible to re-examination at the expiration of six months. They are then obliged to receive a rating of 75 in each branch in which they are re-examined before license can be issued. Under the Maryland law, students who, at the end of their second year, have successfully passed their college examination in anatomy, chemistry, materia medica and physiology, are entitled to examination by the Board of Medical Examiners in these branches. The ratings made by these students in the examination known as the "second year examination," are carried forward and made a part of the final examination, when an average of 75 must be obtained to secure a license.

We trust that this statement will make clear the apparently incomplete examination of certain participants.

REPORT OF BOARD OF MEDICAL EXAMINERS OF MARYLAND.

QUESTIONS AT THE JUNE (1906) EXAMINATIONS.

ANATOMY.

1. Describe the upper extremity of the femur.
2. Describe briefly the elbow joint.
3. Name the accessory sinuses of the nose.
4. Describe the collateral circulation after a ligation of the external iliac artery.
5. Name and give location of the salivary glands and state just where their ducts empty.
6. Describe the portal system of veins.

SURGERY.

1. What are the general principles governing the treatment of fractures at or near joints?
2. What conditions require and what is the usual method of performing (a) thoracentesis, (b) resection of ribs.
3. Give the treatment of a sprain of the ankle joint.
4. (a) Give the differential diagnosis between chancre, chancroid and herpes preputialis. (b) Give in detail the proper treatment of each.
5. Stating your reasons, give what you consider to be the most suitable suture material for (a) anastomosis of the intestines, (b) uniting the peritoneum, (c) muscles of the abdomen, (d) closing skin.
6. Give the treatment of severe shock after severe injury or after a major surgical operation.

PATHOLOGY.

1. Define the following terms: Coccus, bacillus, spirillum, anaerobe, facultative anaerobe. Name one anaerobic organism.
2. Name the pathogenic cocci. Give the morphology and method of staining of each and name the varieties usually found in the following diseases: Furunculosis, tonsilitis, purulent salpingitis.
3. Describe in detail the process of cavity formation in a case of tuberculosis of the lungs. Give the morphology of and describe in detail the method of staining of the tubercle bacillus. Name two other bacilli with similar staining properties.
4. Describe the pathologic changes as regards the urinary tract one would expect to find in a case of hypertrophy of the prostate of long standing.
5. Describe macroscopically the changes one would expect to find in the appendix and surrounding structures in a case of catarrhal and one of gangrenous appendicitis, respectively.
6. Give a gross and microscopical description of a cross section of a myomatous uterus. In what other localities is this species most frequently found?

OBSTETRICS AND GYNECOLOGY.

1. Describe the preliminary arrangements and preparation for an approaching accouchement.
2. What is your treatment for a case of placenta previa about the eighth month of pregnancy?
3. Give diagnosis of a pregnancy at the third month.
4. Describe the mechanism of a podalic version and mention the points of danger to the foetus.
5. Describe a complete abdominal hysterectomy?
6. Describe some conditions of the uterus which may be relieved by an amputation of the cervix.

PRACTICE.

1. Define (a) tachycardia, (b) leukaemia, (c) cretinism, (d) hydro-thorax, (e) ascaris lumbricoides.
2. Name symptoms of (a) ulcer of stomach, (b) acute nephritis, (c) scarletina.
3. What means would you employ in the diagnosis of diseases of the lungs, stomach and kidney?
4. Name some of the sequela of typhoid fever. Name some causes of intestinal obstruction.
5. Give treatment of diabetes mellitus. Give treatment of laryngeal diphtheria.
6. Give diagnosis and treatment of tetanus.

CHEMISTRY.

1. Define the terms element, compound, mixture, and explain the use of the suffixes -ous and -ic.
2. State the chemical composition of atmospheric air. What is the difference between expired and inspired air, and explain how this is brought about?
3. State the properties of good drinking water. What are its most dangerous impuri-

ties, and why, and describe the methods in use for its purification?

4. Give the hemical definition of a simple ether. Give the chemical constitution and the physical and chemical properties of "sulphuric ether." Is this term a correct one, and why?

5. What, chemically, are the vegetable alkaloids? State their general characteristics and give the effect of solvents on them and their salts.

6. Suppose a specimen of urine of normal specific gravity and of either neutral or faintly acid reaction shows, on boiling, a precipitate. What substances may this indicate, and how are they to be differentiated?

MATERIA MEDICA.

1. Give the composition of compound cathartic pills, black wash and Dover's powder.

2. Give the official Latin title of paregoric, name all of its constituents and give the amount of the principal drug in one ounce of the mixture.

3. What is the official name of calomel? What drugs are incompatible with it, and why?

4. Give the botanical name and official preparations of digitalis, with dose of each.

5. Name the official vegetable acids.

6. Give the source of acetanilid, caffeine and salol.

THERAPEUTICS.

1. Give general rule for calculating doses for children.

2. What are the modes of administration of medicines? How does dosage vary in each with that of the mouth?

3. What are the physiological effects and medicinal uses of the preparations of belladonna?

4. Give the therapeutic uses of the iodides. How are they best administered?

5. What are antipyretics? Describe general use of and how administered.

6. Name the official digestive ferments; give their physiological action and therapeutic uses.

PHYSIOLOGY.

1. Describe the circulation of the blood.

2. (a) What is coagulation of the blood? (b) Give some of the theories of coagulation and state how it may be hastened or retarded. (c) What is intravascular clotting? How may it be caused and why does it not take place under ordinary circumstances?

3. What is meant by the heat regulating mechanism of the body? Explain the maintenance of a constant body temperature.

4. Describe the physiological function of the kidneys.

5. Describe the mechanism of respiration, both normal and forced.

6. Describe the phenomena and give some of the theories of sleep.

Medical Items.

THE midsummer number of *Charities and the Commons* is a special milk number. There is a synopsis of the lectures delivered last winter in Baltimore and an illustrated account of the milk exhibition.

DR. CHARLES T. WHALAND, a graduate of Maryland Medical College in 1905, and a son of Dr. Charles Whaland of Chestertown, died at the Maryland General Hospital, Baltimore, on August 14 of spinal meningitis.

DR. CALVIN DE FORD SNYDER, a graduate of the University of Maryland in 1898, and a contract surgeon in the United States army since 1900, was killed in a fight with the Pulujanas at Julita, Island of Leyte, Philippine Islands, on August 9. Dr. Snyder was 28 years of age.

DR. SAMUEL H. FRANK of Baltimore died suddenly on August 3 of heart disease. Dr. Frank graduated at the University of Maryland in 1862 and was a specialist in ophthalmology. In recent years he had not practiced, though retaining an active interest in professional matters. His widow has given $75,000 to the Hebrew Hospital, to be used in the erection of a new building. Dr. Frank was for several years the president of the Hebrew Hospital and Asylum.

THE case of the Syrian leper from Elkins, W. Va., brought a good deal of criticism on the Maryland State Board of Health on account of the transfer of the patient from Maryland back to West Virginia. Dr. John S. Fulton, who personally conducted Rashid back to West Virginia, on the Baltimore & Ohio Cincinnati express, was the first to speak out in condemnation of the movement. He said that "from the scientific point of view it was absurd, and from the standpoint of humanity contemptible." Much prose and some verse has been written on the deplorable experience of poor Rashid. Dr. Fulton thinks that the project of returning him to his native land is quite practicable and not very difficult. The chief difficulty, he says, is to get together the interested officials. Rashid is now isolated in a tent near Pickens, in Randolph county, West Virginia.

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HYDATID CYSTS, WITH A REPORT OF A CASE.

By R. Edward Garrett, M.D.,

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Of the various cysts which affect the human subject none is so interesting, especially from an etiological standpoint, as the hydatid form resulting from the ingestion of the *Tenia echinococcus.*

The ordinary tapeworm of the human intestinal tract is the cause of no special alarm either for the patient or medical attendant, for as soon as a segment is passed a little fasting and medication promptly rids the bowel of its unwelcome guest.

This is not the case, however, with the cyst-forming tenia, for its terminal infections are certainly to be considered most grave.

While it is true that these cysts sometimes remain dormant, they oftener cause dangerous illness or death in one or another of several different ways according to the course the disease may run under divers conditions.

A fatal outcome may result from the pressure of the cyst upon vital organs, or by encroaching upon and destroying the tissue of essential glands whose secretions are necessary to life.

They may also rupture into large vessels or into the peritoneal cavity, or, finally, the cyst may become infected with pyogenic organisms and consequent abscess formation, with pyemic symptoms.

Brieger has demonstrated that the cystic fluid contains a virulent toxic agent, which, when liberated into the tissues or peritoneal cavity, causes a marked inflammatory reaction.

Sommers reports cases where the cysts have remained quiescent for 15, 18, and even 30 years, their presence unsuspected until autopsy. About 50 per cent. of those affected die of the disease within five years. The disease is rare in America, and while many cases have been reported in Germany, it is most common in India, Iceland, and Australia. Its frequency depends upon the infection of the domestic animals of any given climate and the more or less intimate association of man with these affected animals.

The dog being the chief means of transmission in Iceland, where

he lives under the same roof with his owner, and being used largely in the herding of sheep in Australia, probably accounts for the prevalence of the disease in these countries. The dog may infect his master by the accidental contamination of the food of the latter by the fecal excretions of the former, or the parasite may be transferred to man by the dog getting the larva into its mouth by licking some portion of its anatomy soiled with excreta and, in turn, licking the hands or face of its master.

This little worm, which is the smallest of the cestode group, measuring in its entirety something less than a quarter of an inch, has four segments, the last of which is as long as the first three combined, and contains the generative organs and the eggs.

While the full-grown worm is found in the intestine of the infected animal, only the larval scolices or heads develop in the cysts which occur in the human subject. Each head has a double row of hooklets, 30 or 40 in number, and Leuckart contends that the size of the hooks is indicative of the age of the specimen.

As to the history and development of the worm in the human being, the course is about as follows: The larval worm, after gaining access to the human stomach, is hatched out by the "eggshell" or covering being dissolved by the action of the gastric juice, thus setting free the embryo worm, which, acquiring a hold by means of its hooklets upon the mucous membrane of the stomach, or more usually the duodenum, burrows through the different layers of the intestine and finds its way into one of the branches of the portal system, through which it is carried and is lodged in some viscera suitable for its further nourishment and growth.

Once finding a lodging place (usually in the liver or lungs), a small vesicle is seen to develop from the caudal extremity of the scolex, which gradually extends until it invaginates and finally completely envelopes the embryo tenia, which then floats free in the fluid, entirely surrounded by membrane. This is the miniature hydatid cyst, and may grow to considerable size.

This membrane, the output of the parasite, forms the inner wall, which, as the endocystic fluid increases and the walls become thicker, can be divided into two layers—an external or capsular and an internal or parenchymatous. Later on there is also added a fibrous investment, formed by the atrophy and crowding together of the adjacent tissue of the organ in which the cyst is situated.

From the innermost or parenchymatous layer of the original investment small offshoots or buds project and finally form daughter and granddaughter cysts and brood capsules, which, as they mature, collect within, leaving the wall and floating in the endocystic fluid until the parent cyst contains myriads of minute cysts, each representing a larval tenia.

Besides these endogenous daughter cysts which accumulate within, there are others which project in just the opposite direction, penetrate the wall and pass outwards (exogenous), and it is owing to this circumstance that some of the cysts are unilocular and others multilocular (Blanchard). The unilocular variety

predominates and usually contains a perfectly clear fluid (resembling cerebro-spinal fluid), but often from various causes undergo degeneration, when the capsule shrinks and the cystic fluid becomes converted into a cream-colored granular, caseous material. In the fluid of these cysts and from the scrapings of the cyst wall the characteristic hooklets alone, or the hooklets and scolices of the parasite, are found, the former oftener and usually in great numbers, or, again, the cyst may be sterile and contain neither. The multilocular variety was at one time considered cancerous, because when many cysts were found the occurrence suggested metastasis; moreover, the growths often presented an alveolar structure containing a colloid material. It was not until Virchow demonstrated the existence of hooklets that their real nature was determined.

The disease may exist and give no sign of its presence, especially if it is non-active or of slow growth, and is rarely detected until it becomes large enough to cause pressure symptoms, or becomes palpable, or can otherwise be demonstrated by physical signs. Only by its general appearance and by chemical and microscopical examination can it be distinguished from other cysts. The finding microscopically of the scolices or hooklets is pathognomonic. Fortunately, these cysts have a tendency to extend toward the surface, which render them much more accessible for the surgeon, inasmuch as the disease is eminently surgical, and is cured by incision, removal of the cyst, and drainage or closure, as the operator deems best suited for the individual case.

The mortality for the cases in which operative interference has been instituted is about 16 per cent. Exploratory puncture for diagnostic purposes is dangerous and should never be practiced. In the countries where the disease is more commonly seen, and the number of cases tabulated is large enough to be of value, it is found that the liver is the organ most frequently affected, followed next in order by the lungs, then the kidneys, bladder and peritoneum, and, finally, by the brain. Harvey Cushing has seen in Horsley's Clinic in London a hydatid cyst in the spinal canal. Osler, in the last edition of his "Practice of Medicine," reports Lyon as having collected from the statistics up to the year 1902 "241 recorded cases occurring in America, and of these 136 were of foreign birth, 92 were unknown, 10 were negroes, 2 Canadians, and in only 1 was the patient a native-born American."

The following case, occurring in a patient at the Maryland Hospital for the Insane, is reported partly because the disease is unusual in the United States and also for the reason of the confusion arising from the symptoms closely resembling pulmonary tuberculosis:

L. S., female, colored, aged 46 years, a native of Worcester county, Maryland, was admitted to the State Asylum February 19, 1889. She was placed in the institution for treatment of manic-depressive insanity. The mental symptoms consisted of recurrent attacks of 8 or 10 weeks of marked exaltation, followed by a similar period of mild depression, which alternated with great regu-

larity. Although of rather small frame and always spare, her physical health was most excellent for the first 12 years immediately following her admission, at the end of which time there were attacks of syncope, followed by more or less stupor which lasted for several days.

These symptoms were evidently nephritic in origin, as hyaline and granular casts were found in abundance in her urine, and there was also marked arteriosclerosis. She soon improved, however, and remained in fairly good health until the beginning of her final illness.

On April 16, 1906, after a few days of apparent malaise and indisposition, a mild diarrhea began, accompanied by nausea, vomiting, and slight fever.

The diarrhea continued off and on throughout the course of the attack.

For the first week the temperature ranged from 100° to 101° F. Examination of abdomen and lungs gave negative results. Diazo negative. During the following week no additional symptoms occurred. The vomiting ceased; there was no enlargement of the spleen. On account of the color (negress) rose spots, of course, could not be taken into consideration. Widal negative. On May 2 she had a chill, followed by temperature which reached 104°. It was now noticed that she had a cough which had not existed previously, or if so, did not attract attention. Physical examination revealed dullness over a limited area of the middle lobe of right lung posteriorly, with coarse moist rales over the dull region.

The temperature continued to register around 100° in the morning and usually approximated 102° in the evening. Closely following this, hectic symptoms developed, rigors occurred at irregular intervals, followed by a sudden rise in temperature (104°), and then resuming the moderate evening rise again.

There was rapid loss of weight and appetite, decline in strength, with increasing feebleness of pulse. The patient being insane, the sputum was swallowed, and could not be collected in the usual manner. Later, however (May 18), slides were made from sputum accidentally expectorated upon the pillow-slip which had escaped from the mouth instead of passing through the alimentary route, from which, however, no tubercle bacilli could be demonstrated, but considerable elastic tissue and pus cells were found. The finding of elastic tissue strengthened the belief that tuberculosis existed, for certainly the combined symptoms of diarrhea, cough, hectic condition with rigors, an evening rise, loss of weight, with the physical signs in the lung, would surely justify the assumption. It was fully expected that the bacilli would be found if an opportunity to procure another specimen presented itself. It was not obtained, however, during the following nine days, at the end of which time (May 27) the patient died with what was thought to be pulmonary tuberculosis.

A complete autopsy was made the day after death, but as only

certain organs have any bearing on the case, it will not be given in full.

The heart, stomach, spleen and intestines presented no pathologic changes.

The brain showed only the commonly-seen dilated lymph vessels, with atrophy of the gray matter and atheromatosis of the circle of Willis.

The kidneys showed the usual changes common to interstitial nephritis.

In the upper portion of the middle lobe of the right lung, posteriorly, was a cavity surrounded by a thick wall the size of a hen's egg, containing a dark-brown fluid not unlike thin, dirty pus. It contained an opening which communicated with a bronchial tube.

Extending from this and circumscribing it there was an area of inflammation of surrounding lung tissue for 4 or 5 cm., but no caseation. Glass-slide smears were made from the fluid, and the entire lobe of the lung containing the specimen was laid aside for more minute examination. Extending laterally and posteriorly from this portion of the lung were recent pleuritic adhesions involving a limited irregular space 8x10 cm. and easily broken up. Weight of lung 24 ounces.

The liver weighed 52 ounces, and presented no bulging or abnormal projections externally, nor was it larger than normal. Several through-and-through sections were made, when finally the knife completely bisected a cyst the size of a man's closed fist situated in the center of the right lobe, which contained a yellowish granular, semisolid caseous material resembling curd. The surrounding liver tissue was healthy.

The walls of the cyst were thick, sharply defined, and could easily be separated into two distinct layers with the fingers, the inner one being thicker, grayish in color, and friable. The outer one was thinner, darker in color, and much tougher. From its appearance, location, etc., this cyst was at once thought to be hydatid, and suggested that the finding in the lung was possibly a cyst of similar origin, and later the supposition was proven to be correct.

The two cysts were then studied together. The one in the lungs containing the same layers to its walls had suppurated and broken down, causing septic symptoms and death.

The liver cyst was intact, unilocular, quiescent, and giving no signs of its existence.

The characteristic hooklets of the *Echinococcus tenia* were demonstrated in both cysts. The pulmonary cyst contained fewer hooks and many polynuclear leucocytes.

In the cyst of the liver the hooklets were found in countless numbers, and while seen unstained and with the low power, they were beautifully outlined and rendered morphologically more distinct by fixing and staining with gentian violet and viewed with the oil immersion. They take the stain very lightly, which causes them to appear much more refractive and hyaline, and therefore more clean-cut.

Hooks of all descriptions were found, some small, others large, quite a number with a heavy and rough base, the curve being acute in a certain percentage, but obtuse in the majority. The apparent blind canal in each hooklet could be easily seen. The writer counted 11 hooklets in one field of the oil-immersion lens.

No scolices could be satisfactorily demonstrated.

It would seem that the case should have been diagnosed from the microcopical specimen gotten from the sputum during life. It must be remembered, however, that the one specimen which was gotten with great difficulty was unsatisfactory, and even if the hooklets had been present they could easily have been overlooked, for when examining for tubercle bacilli the eye unconsciously is attracted only by fine short lines stained with fuchsin red, and hooklets, if sparse, could readily escape detection when one is not looking for them.

The elastic tissue found represented only the breaking down of bronchial or lung tissue consequent upon the suppuration. On account of the color of the skin (negress) it is not known whether urticaria was present or not.

The autopsy was made by the hospital pathologist, Dr. T. A. Hurley, and the writer.

The case is reported through the courtesy of the superintendent, Dr. J. P. Wade.

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TUBERCULOSIS OF CATTLE—HOW IT MAY BE REPRESSED, AND ITS RELATION TO THE PUBLIC HEALTH.

By Leonard Pearson, B.S., V.M.D.

Philadelphia.

THE subject that we are to consider this evening is one with regard to which the greatest possible differences of opinion have prevailed. Is tuberculosis of cattle transmissible to man and, if so, to what extent is the milk of tuberculous cows harmful?

In answer to these questions Koch has said: "I should estimate the extent of infection by the milk and flesh of tuberculous cattle, and by the butter made from their milk, as hardly greater than that

of hereditary transmission, and I therefore do not deem it advisable to take any measures against it." On the other hand, von Behring has recently said: "the infant's milk is the chief source of tuberculosis infection." These are the extreme views on this subject.

Is it true that the milk of tuberculous cows is of so little importance to public health that no action on this subject is necessary, or is this the chief source of infection in mankind, or is the truth, perhaps, to be found somewhere between these extreme views?

A dogmatic answer to these questions can be of no value. The situation is to be cleared up not by opinion, but by facts. I have thought that it might interest you to consider some of the leading facts that are of importance in arriving at a decision as to the merits of this case. It does not seem so strange that such different views prevail in regard to tuberculosis when we consider how recent is our knowledge of this disease. While some exceptionally clear-sighted individuals recognized tuberculosis to be a contagious disease in olden times, it was not generally so considered, even by the most advanced medical thinkers, until after the epoch-making experiments of the French investigator, Villemin, in 1865. These experiments proved that tuberculosis may be transmitted by inoculation from animal to animal and from man to animal, they demonstrated the infectious nature of the disease, and were accepted as proving the identity of human and animal tuberculosis. This work was repeated and confirmed by numerous pathologists in different countries, and especially by Chauveau (1868), Gerlach (1869), Bollinger, Klebs, and Cohnheim.

The unity of the different forms of tuberculosis of mammals was regarded as fully proven when, in 1882, Koch discovered the tubercle bacillus and established the fact that this germ is the cause of tuberculosis, and that there can be no tuberculosis without the presence of the tubercle bacillus. This discovery placed the study of tuberculosis on an entirely new plane, and there was general agreement to the effect that tuberculosis of man and of the higher animals is one disease until, in 1896, Theobald Smith discovered certain differences between a culture of tubercle bacilli from a cow and another culture believed to be of human origin. These differences consisted in minute variations in size and shape, in some slight, although well marked, differences in growth upon artificial culture media and, most strikingly and most constantly, in differences in virulence for cattle. It was shown by Smith and also by Frothingham, Dinwiddie, Ravenel, and de Schweinitz that, while cultures of tubercle bacilli from cattle afflicted with tuberculosis are, almost invariably, capable of producing progressive tuberculous disease when inoculated upon cattle that, on the other hand, cultures of tubercle bacilli from man are *usually* not virulent for cattle; that is to say, when inoculated upon cattle they produce either no effect or merely local disease.

This especial subject received a great deal of attention at the laboratory of the State Livestock Sanitary Board of Pennsylvania during a period of five years. A large number of experiments

were instituted for the purpose of comparing tubercle bacilli from men and from cattle. It was found that tubercle bacilli from cattle are at least as virulent, and generally very much more virulent, than tubercle bacilli from man for experimental animals, including herbivora, carnivora, omnivora, and also monkeys of several species.

This development in the study of tubercle bacilli from different mammals, which had taken place almost entirely in America and which was just becoming generally known, was brought vividly to the attention of the whole world in 1901 by Koch, who, in a paper before the British Congress on Tuberculosis, made the statement that I have already quoted, to the effect that bovine tuberculosis is of such slight importance to the public health that no action need be taken regarding it. In our effort to come to a just decision in this matter, it is necessary to analyze briefly the facts upon which Koch's opinion was based.

Koch had found by experimentation that American investigators, following the lead of Theobald Smith, were correct in their conclusions to the effect that tubercle bacilli from cattle are *usually* much more virulent for experimental animals than are tubercle bacilli from man. He was so impressed by this fact that he came to regard tuberculosis of man and of cattle as distinctly different types of disease. It had been shown that human tuberculosis cannot, *in most cases,* be transmitted to cattle, and so he concluded that the converse must be true, and that bovine tuberculosis cannot be transmitted to man. It does not seem that this inference can fairly be drawn from the established facts that the chief and most striking difference between human and bovine tubercle bacilli lies in the fact that the bovine germ is very much more virulent than that from man; so that while most human tubercle bacilli are incapable of causing disease in experimental animals of several kinds, there is no experimental animal (mammal) that is able to resist infection by the bovine germs. So far, then, as this point is concerned, it would appear that the demonstration of the extreme virulence of the bovine tubercle bacillus would point quite as clearly to more danger to mankind than had formerly been attributed to this germ than to lessened probability of danger.

Another point that we must consider, that was made by Koch in his London address, is with regard to infection of the human subject by way of the digestive tract. Koch called attention to the fact that when tuberculosis is carried from cattle to mankind, it is through the food, and especially through the milk, for meat is usually cooked enough to destroy tubercle bacilli, if any should be present. This being the case, he concluded that when coming from cattle, the disease should originate in the victim as a primary intestinal tuberculosis. Koch seems to have had the opinion that in cases of food infection, the only, or at any rate the chief, lesions should involve the intestines. He calls attention to the reports of the Charté Hospital in Berlin, showing that in a great mass of material, but 10 cases of primary tuberculosis of the intestines

occurred in five years, and also that among 933 cases of tuberculosis in children Baginsky never found tuberculosis of the intestines without simultaneous disease of the lungs and the bronchial glands.

With reference to this point, it may be said that the cases admitted as primary intestinal tuberculosis under Koch's very rigid interpretation of this term, do not furnish any evidence whatever as to the frequency with which infection occurs through the digestive tract. It has been shown that tubercle bacilli may pass through the wall of the intestines and enter the blood stream by way of the thoracic duct without causing any visible alteration in the intestinal wall. Indeed, when animals are artificially infected with tuberculosis by feeding them tuberculous material it is very rare to find ulceration of the intestine or tubercles in the walls of the intestine, unless an excessive quantity of infectious material has been fed.

It has happened in some carefully-conducted experiments that animals infected by feeding have, after death, shown extensive tuberculosis of the lungs and very little disease, indeed, sometimes no trace of disease, in the organs of the abdominal cavity.

A third point made by Koch in the address referred to, is stated in these words: "Hitherto, nobody could decide with certainty in such a case whether tuberculosis of the intestine was of human or of animal origin. Now we can diagnose them. All that is necessary is to cultivate in pure culture the tubercle bacilli found in the tubercular material and to ascertain whether they belong to bovine tuberculosis by inoculating cattle with them." In this view, Koch is in accord with Smith, who holds that the type of the bovine tubercle bacillus is so fixed that it is not lost through growing in the human subject, so that after the death of such subject, the germ may still be recognized as of bovine origin, and the surest test for this is to determine whether it is capable of producing disease in a calf.

Since 1901 a very great amount of fruitful study by leading bacteriologists has been devoted to this particular problem. It is clearly established that tubercle bacilli as they occur in mammals may be divided into two varieties or types: the bovine type, which grows slowly in artificial cultures, which is relatively thick and short, and which is highly virulent for rabbits, cattle and all other mammals; and the human type, which grows more readily in artificial cultures, is slightly longer, more slender, is more inclined to be beaded, and which is but slightly virulent for rabbits and cattle, and is of lower virulence than the tubercle bacillus of bovine type for all other animals excepting, possibly, for the extremely susceptible guinea pig.

Let us look for the cause of this difference. Every living object is influenced by its environment; its habits of growth and its characteristics are determined to a great extent by the conditions to which it is subjected. When a living organism inhabits the tissues of another living being it is known as a parasite. The tubercle

bacillus is a parasite, and has lived a parasitic existence so long that it is now incapable of growing under natural conditions outside of the living body. If it is propagated, during a long period, from one animal to another of the same species, it must develop certain characteristics expressive of the influence of its long continued and unchanging environment.

Tubercle bacilli as they affect mammals, are propagated chiefly in the bodies of human beings and of cattle. While the disease affects animals of other species and, indeed, no warm-blooded animal is wholly exempt, tuberculosis is not propagated continuously in animals of any other species than the two just referred to. For example, tuberculosis is in some regions very common among swine. But it is always possible to show that the prevalence of tuberculosis among swine is in proportion to the amount of milk they eat and to the prevalence of tuberculosis among the cows that produce this milk. Tuberculosis of swine is most prevalent where they are fed on skimmed milk from creameries in districts where there is much tuberculosis among the dairy herds. This disease is but rarely transmitted from swine to swine. Tuberculosis of horses occurs where there is much tuberculosis of cattle, and where it is the practice, as was formerly the case in Denmark, and to a less extent in England, to feed a certain amount of cow's milk to foals and to horses out of condition. I know of no case where there has been reason to believe that tuberculosis has been transmitted from one horse to another. Tuberculosis of dogs and of cats is sometimes contracted from cattle through feeding upon infectious milk or upon the organs of animals afflicted with tuberculosis, as at a slaughter-house; or pet dogs and cats kept in the house, may contract tuberculosis from their consumptive masters. Tuberculosis of all other mammals may likewise be traced to a bovine or human source.

Thus it is that there are two main branches or streams of mammalian tubercle bacilli, one following its course through the bodies of consumptive people and the other through the bodies of consumptive cattle, and each giving off, here and there, side branches to animals of other species. But these secondary branches terminate within a generation or two after leaving one of the main stems, while the principal currents continue to flow through the bodies of men and of cattle, on and on, as they have done for centuries, leaving broad swaths of dead and dying victims. This continuation of tubercle bacilli in one line or the other has produced the definite characteristics that have been mentioned as the distinguishing features of the human and bovine types of this germ.

The important question from a public health standpoint is, are the germs of bovine tuberculosis capable of producing disease in man? This question can now be approached in a new and enlightening way. Formerly the attempt was constantly made to decide the question as to the transmissibility from cattle to man by what might be termed clinical observations. Numerous cases were recorded to show that people had become infected with tubercu-

losis from cattle, through wounds upon the hands. Some of these cases appear to lack none of the accuracy of a deliberately planned scientific experiment, the possible sources of error having been so carefully excluded. There are also numerous cases of record which are believed to show that tuberculosis has been conveyed through milk from cows to children. Some of these observations appear to have been made with such care and completeness as to exclude all probability of error. For example, I am personally familiar with the following case: A young couple, shortly after marriage, moved into an entirely new house, in which their first child was born. The parents were thoroughly healthy, rugged people, entirely free from the slightest suspicion of consumption and, so far as known, there was no taint of consumption in the family of either. The single servant was a healthy young person. The child, which was fed on the milk of one cow, died of tuberculosis when about eight months old. Attention was then directed to the cow, and it was found that she was rather extensively tuberculous.

Those who oppose the view that tuberculosis may be transmitted from the bovine to the human subject call attention to the possibility of error in all of the great number of observations similar to the one that I have just given. Their criticism is that such observations do not prove that a child was infected through the milk unless all other possible sources of infection are rigidly excluded. They say that the child may have contracted tuberculosis from a human subject through some unseen and unsuspected channel, that the germs may have been brought into the house by the grocer's boy or by the baker, or upon the hem of a skirt of a visitor. Such possibilities must be admitted, but it cannot be admitted that they destroy the conclusion that is usually drawn from these observations.

If we assume, merely for the sake of argument, that 10 per cent. of the tuberculosis of childhood is derived from cattle, it should not be in the least surprising, in view of the extent to which consumption prevails, and in view of the long time usually required for its development, the months or years that may elapse from the time that the infection is acquired until the first symptoms of illness appear, that the route of passage of infection from the cow to the baby should be unrecognized and unobserved. That this observation should not be made is still less surprising in view of the fact that for centuries tuberculosis has been passing from one person to another, and is chiefly propagated in this way, but it is only in the most recent times, indeed, within the period of recollection of most of the adults of this room, that this essential fact has been recognized. Even now there are a few unconvinced persons who deny it.

The recent great additions to our knowledge of the bacteriology of tuberculosis, which have made it possible to distinguish the bovine from the human type of tubercle bacillus, have made it possible to obtain exact and convincing evidence as to whether the

bovine bacillus is capable of causing disease in the human subject. Koch recognized this point, as Smith had before him, and suggested that experiments be made to determine just how often people are infected by the bovine bacillus, the possibility of which he did not deny, although he regarded such infection as excessively rare. Studies on this point have been made in nearly all civilized countries, and they show that the bovine bacillus is the cause of a varying amount of disease. Of six fatal cases of tuberculosis of children studied bacteriologically by Ravenel in Philadelphia, three were found to be infected with a tubercle bacillus of the bovine type.

Similar studies have been made by a great many individuals, by an English royal commission, and by a committee of investigators appointed by the Imperial Health Office of Germany. These investigations have shown beyond question that tuberculosis of man may be caused by tubercle bacilli of the bovine type. The proportion of cases in which this germ is found varies considerably; of the German cases about one-eighth and of the English cases about one-third were caused by bacilli of bovine type. *It must be remembered, however, that the number of studies that have been made in this direction are not yet sufficient to justify one in drawing any conclusions as to the actual frequency of the infection of the human being with bovine tubercle bacilli.* The clearly established and important point is that the same kind of tubercle bacillus that produces disease in cattle may also produce disease in man. Upon this point there appears to be no room for difference of opinion.

Now that we know that tubercle bacilli of bovine type are virulent for man, we know that milk carrying them is freighted with danger. The condition is as though the poisonous nature of some common substance had just been proven as, for example, of arsenic. Since we know that arsenic is highly poisonous, we know that bread, cake, candy or butter containing arsenic is dangerous. It is not that these substances are in themselves dangerous; there is danger from the arsenic that they contain. Since arsenic is a poison and may cause death, therefore if it be present in an ordinarily wholesome foodstuff it is known that that food is dangerous. It is not necessary to prove separately and specifically and by experiments on people that cake containing arsenic is poisonous. As arsenic is a poison, therefore, without doubt, the cake that contains arsenic is dangerous, and any foodstuff whatever that carries arsenic is dangerous in proportion to the amount of arsenic that it contains.

Similarly, with regard to tubercle bacilli, we know that these germs cause tuberculosis and so anything that carries them is dangerous. A berth in a sleeping car, for example, in which the germs of tuberculosis have been deposited by a dirty consumptive is known, from this fact, to be dangerous. It is not necessary to show that someone at some time contracted tuberculosis from occupying a certain sleeping car. The tubercle bacilli are there; therefore there is danger.

And so with regard to milk containing tubercle bacilli. We know that tubercle bacilli of the kind that develop in cattle are virulent for man. Therefore, milk containing such bacilli is dangerous.

So much established, the next important question is as to the frequency of the occurrence of tubercle bacilli in milk. I shall not go into this question at length, for it will probably be sufficient to say that tubercle bacilli are most plentiful in milk, and milk is most dangerous when the cow suffers with tuberculosis of the udder. Even though the milk of a cow with tuberculosis of the udder be diluted with the milk from a number of large herds, the mixture still continues to be infectious.

But tubercle bacilli may also occur in the milk when the udder is healthy. The danger in such cases is in proportion to the extent of the disease in the cow. One of the striking points regarding tuberculosis of cattle is that the disease may be very extensively developed without producing external signs. This peculiarity was very strikingly shown in the case of a fat steer that was extensively and successfully exhibited at a number of state fairs and was afterwards awarded a prize in a large class of fat bullocks at the great livestock show in Chicago. After the last competition this steer was entered in a block test and was slaughtered, when it was found by the meat inspector that he was afflicted with extensively developed and widely distributed tuberculosis. And so it is that some cows are extensively infected with tuberculosis and yield infectious milk even though they show no external signs of tuberculosis.

Fortunately, however, the greater part of the cows that yield infectious milk can be detected upon clinical examination by a skilled veterinarian. This would include not only cows with perceptible disease of the udder, but also those with chronic discharges of any kind, and cows with tuberculosis of the throat or lungs such as to cause coughing. Where there are in a stable cows with extensive tuberculosis of the lungs tubercle bacilli are scattered widely, and may be deposited on the hair of the cows. Moreover, as cows do not expectorate, but swallow their sputum, excepting when it is coughed out, tubercle bacilli may be passed in great numbers with the dung. Therefore, as the milk is soiled by the dust and dirt from the flanks and udder of the cows, from the hands of the milker, and from the stable air, it may become contaminated by tubercle bacilli from these sources even though the milk is free from tubercle bacilli as it comes from the udder.

But most of this danger can be avoided, as I have said, by sufficiently frequent and careful physical examinations of milch cows. Unfortunately, however, even this precaution is rarely taken by states or municipalities and, indeed, in most places very little if anything is done to protect the people from bovine tuberculosis. Among the exceptions are Massachusetts, which has the most complete system of herd inspection of any state, and the sources of the milk supply of Washington are rather carefully controlled. In

Pennsylvania it is required under a new law that cattle with tuberculosis of the udder or with advanced or generalized tuberculosis shall be reported to the State Livestock Sanitary Board, whereupon they are destroyed.

[*To be Concluded in November.*]

OPERATIVE TREATMENT OF FRACTURES. By W. Arbuthnot Lane, M.S., F.R.C.S., Surgeon to Guy's Hospital and Senior Surgeon to the Hospital for Sick Children, Great Ormond street. London. The Medical Publishing Co., Ltd. 1905. Price 7/6.

The author has published this treatise in support of his method of treating fractures for which he has vigorously contended during several years past. This method briefly stated is the opening of all fractures by suitable incisions and the fixation of the fragments by mechanical means in their normal situations.

Mr. Lane's argument may be divided into two propositions:

First, that the treatment of fractures by any of the usual methods of extension, manipulation and fixation by splints or casts, does not and cannot secure good functional results.

Second, that any chance in the length, normal direction, or relations of the bone, will produce abnormal and injurious changes in the bone and joint.

In effect, Mr. Lane regards the bone as the crystallization of the several lines of force, capable of great modification, through physiological or pathological variations in these lines, especially in young subjects. Thus any modification in the power (the muscles), resistance (the weight of the body and of burdens), and moment (point d' appui), will produce corresponding alterations in the fulcrum (joint).

Illustrations of the bones of laboring men, whose occupation involves hard usage of a particular set of muscles or the support of heavy burdens, show surprising and marked alterations in the bones and joints, affecting not only the long bones, but the vertebrae, ribs and even the base of the skull.

Mr. Lane demonstrates even greater changes in the shafts and joints following fractures treated by the closed method by radiographs and dry specimens, and shows marked disability and functional impairment by clinical histories of cases referred to him for treatment.

The more severe degree of Pott's fracture, i. e., fracture of the fibula and post articulating surface of the tibia with dislocation of the astragalus backwards and upwards, may be selected to illustrate Mr. Lane's method of treatment. The joint is opened under the most rigid asepsis and the fragments replaced by the leverage of heavy forceps. A silver screw is driven through the fibula into the tibia. The tibial fragment is attached in like manner to the tibia and the skin incision closed. For fragile and comminuted fragments staples are used, but screws are preferred when practicable.

Mr. Lane maintains that in injuries of this character the impossibility of even a fair degree of approximation of the fragments by extension and manipulation may be shown by trial when the whole site of injury is exposed.

PROCEEDINGS

OF THE

MEDICAL AND CHIRURGICAL FACULTY

OF MARYLAND

Editorial and Publishing Committee.

ALEXIUS MCGLANNAN, M.D. J. A. CHATARD, M.D. JOHN RUHRAH, M.D.

Secretaries of the County Societies are earnestly requested to send reports of meetings and all items of personal mention and of local or general interest for publication addressed to Dr. Alexius McGlannan, 847 North Eutaw Street, Baltimore.

A MEETING for the reorganization of St. Mary's County Medical Society was held at Leonardtown on July 25. Dr. S. T. Earle of Baltimore presided, but Dr. T. L. Lynch of Leonardtown was called to the chair and subsequently elected President of the society. Dr. J. O. King of Oakville was elected Secretary and Treasurer. Those present were Drs. T. L. Lynch, J. O. King, R. V. Palmer, F. F. Greenwell, A. L. Hodgdon, J. H. Mills, and P. H. Lloyd.

The regular meetings in future will be held the first Monday in May and October at Leonardtown.

[The following are the papers presented before the Faculty at the annual Meeting, Wednesday morning, April 25, 1906.]

CERVICAL ADENITIS (GLANDULAR FEVER).

By Dr. Harry T. Marshall,
Instructor in Pediatrics, Johns Hopkins University.

I HAVE chosen the subject of cervical adenitis to present before the society this morning because the condition has been seen so frequently this winter, and also because this disease, though it is usually so mild as to pass unnoticed, may give rise to dangerous complications or sequelae.

Definition.—Glandular fever is an acute, rather mild secondary adenitis attended with considerable swelling, affecting the lymph glands of either the anterior or posterior triangles of the neck or of both anterior and posterior triangles, usually involving both right and left sides. The disease is distinguished by the facts that the primary inflammation of the throat or posterior nares is insignificant or almost absent; that the infectious agent has an almost specific attraction for the lymph glands; that the onset is sudden, the course mild and short, suppuration rare, and that the disease is usually epidemic, being associated also with other naso-pharyngeal inflammations among other members of the patient's household.

Historical.—The condition is described briefly in Weil's textbook on diseases of children, more fully by Filatow in 1885, but the description by Pfeiffer[1] in 1889 is looked upon as the first accurate account of glandular fever, which is often spoken of as Pfeiffer's disease. Pfeiffer separated two forms—the acute and the subacute. Subsequent literature refers chiefly to the acute form. Pfeiffer described the disease very clearly, noting the sudden onset, fever, restlessness, vomiting, occasional dysphagia, and other symptoms. He considered it very characteristic to find the affection limited to the glands along the posterior border of the sterno-cleido-mastoid muscle. Since Pfeiffer's description numerous articles on the subject have appeared, most of which are quite thoroughly reviewed by Korsakoff[2] in a recent article. Park West[3] was the first to describe the disease in this country.

Etiology.—The disease is most commonly met with in children between the ages of two and eight years, but infants may be affected and epidemics may occur among adults. Males and females are equally affected. Malnutrition, previous disease, and exposure to cold are predisposing factors. Most cases occur during January, February, and March. The disease is infectious, and household epidemics are frequent. Adenoids or enlarged tonsils are present in almost every case, perhaps in every case.

The bacteriology has not been thoroughly worked out. In Neumann's cases of idiopathic cervical adenitis and in one of Korsakoff's cases streptococci were the infecting organisms. Schiller recovered streptococci and influenza bacilli from his cases. In a case of Roux and Lannois, which was not typical, staphylococcus aureus was found. There is a general impression that the influenza

bacillus and the pneumococcus are the usual causes of the disease because epidemics of influenza and pneumonia so frequently are accompanied by glandular fever. Various organisms, including streptococci, staphylococci, influenza bacilli, and pneumococci have been recovered from the throats of patients with glandular fever (see Korsakoff[2] and Schiller[4, 5]).

Pathological Anatomy.—The primary focus is a mild acute catarrhal inflammation, located usually in the naso-pharynx, adenoids furnishing an especially frequent site for infection. In other cases the primary focus may be upon the pharynx or tonsils. In any case the primary inflammation is slight in proportion to the swelling of the lymph glands, and, as Vipond[6] says, "the imagination must be drawn upon to convince one that even a slight redness exists." From this small focus the infection travels to the cervical glands. In the most characteristic cases the bacteria pass from the naso-pharynx to the glands draining this region, namely, the lymph glands under the sterno-cleido-mastoid muscle and along the posterior border of this muscle. Owing to the free lymphatic communication the lymph glands in the anterior triangles not infrequently become involved. In the less characteristic cases starting from the tonsils or pharynx the adenitis affects first the glands in the anterior triangles, and later may spread to the posterior triangles.* Some authors include as glandular fever only those cases in which the glands under the sterno-mastoid are involved, but this does not seem to be justified by the etiological conditions nor clinical course. In most cases the swelling affects both right and left sides of the neck, one side often swelling a day or two earlier than the other.

The inflammation of the glands is mild, the swelling being greater than would be expected from the general condition. There are all grades of severity, however, and suppuration may occur. Attempts have been made to separate secondary cervical adenitis with suppuration, and to limit glandular fever to adenitis running a mild clinical course. This seems hardly justifiable. Owing to the mildness of the disease the histology of the glandular changes has not been studied.

In most cases the cervical glands alone are affected. In a fair proportion of cases, however, there is a general lymphadenitis, axillary, inguinal, and mesenteric glands being affected and liver and spleen being enlarged. The blood changes have not been studied.

Signs and Symptoms.—The onset is usually sudden, with mild fever, listlessness, and loss of appetite. The tongue is coated, and there may be vomiting and constipation or diarrhea. There is usually slight reddening of the throat, which increases somewhat after a few days. In rare cases a delicate false membrane has been found over the pharynx or tonsils. Occasional sneezing and a slight cough are not infrequent. Following the listlessness, one

*For a description of the lymphatic drainage of the faucial tonsils and the relations between the tonsils and the deep group of lymph glands beneath the sterno-cleido-mastoid, see Wood (7).

of the first symptoms that attracts attention is pain on moving the head or when the neck is touched. With this there may be torticollis in some cases. The physical examination is negative except for the slight cartarrhal condition in the throat or nares and the tenderness in the neck on pressure or movement. The latter is the most striking symptom. Within a day the swelling in the neck becomes prominent, usually under the upper third of the sterno-cleido-mastoid. The swelling is pronounced, often obliterating the lines around the angle of the jaw. The individual glands are usually discrete, tender, from pea to pigeon's egg in size, and may be either firm or soft. The periglandular edema may be considerable. If the swelling is very great or the throat much inflamed, there may be dysphagia. Within a period varying from a day or two to 10 days the fever disappears, the pain subsides, and the child seems perfectly healthy except for the swelling in the neck. This may last for two to four weeks before it finally disappears, and it is usual for the child to be left more or less anemic. In the majority of cases the signs and symptoms are very mild, the fever and listlessness and pain last only a day or two, and the swelling subsides within two weeks.

Other signs and symptoms are less common. The axillary and inguinal glands occasionally swell very soon after the appearance of the cervical adenitis, and either liver or spleen, or both, may become enlarged. Abdominal pain midway between the navel and symphysis pubis is supposed to indicate involvement of the mesenteric glands. In a few cases skin eruptions have accompanied the disease. Heubner has described an erythematous and urticarial rash over chest, arms, and thighs lasting for four days. Hörschelmann reported a case accompanied by a macular eruption over the trunk, suggestive as much of measles as of scarlet fever. In Botschkowsky's case there was an itching eruption over the upper part of the trunk and the inner aspects of the extremities. Erythema multiform, erythema nodosum, and herpes labialis have also been met with in the course of glandular fever. These eruptions are of interest both in relation to the question of differential diagnosis and also in relation to the question of the etiology of the eruptions.

It is on account of the complications that glandular fever is important. The cervical swelling recurs in many cases. It may recur two or three times within a month or so, with a return of the general symptoms. Suppuration has been mentioned already as an unusual complication. Otitis media, otitis externa and parotitis have been met with in one or two cases of glandular fever. Acute diffuse nephritis occurs during glandular fever not uncommonly, and is the most frequent and most serious complication of the disease that has been described. The nephritis starts usually within the first few days of the disease, or, if it begin later, it is preceded by a return of the swelling in the cervical glands. The nephritis in all the cases described has been of the acute hemorrhagic form. Korsakoff lays special stress upon the similiarity

between this condition and post-scarlatinal nephritis. In both forms there is a preliminary glandular enlargement, followed quickly by the hemorrhagic nephritis. Korsakoff reports a case of glandular fever ending fatally as the result of the complicating nephritis. Streptococci were recovered from the urine, the kidneys showed streptococci and the lesions of scarlatinal nephritis, and there was general septicemia. The nephritis runs the usual course of acute hemorrhagic nephritis, usually ending in recovery, but occasionally terminating fatally or becoming chronic.

Gastro-intestinal complications are infrequent. It seems probable that glandular fever can also be the starting point for such complications as endocarditis, rheumatic fever, general septicemia, and other crytogenetic infections.

Diagnosis.—Cervical adenitis following eczema, otitis, caries, etc., is not glandular fever. If the patient's symptoms can be accounted for by the severity of the throat or naso-pharyngeal condition, and the adenitis is relatively unimportant, the case is not to be regarded as glandular fever. Diagnosis depends upon the recognition of cervical lymphadenitis, usually bilateral and most often in children, affecting especially the glands in the posterior triangles and under the sterno-mastoids, apparently idiopathic or associated with insignificant inflammation of enlarged tonsils or of adenoid growths, and usually occurring in epidemics or in conjunction with epidemics of tonsilitis, influenza, etc. The short and mild course of the disease, the general symptoms described above, and the tendency to spontaneous recovery are characteristic. The diagnosis may be difficult if the patient presents an exanthem. An early, complicating nephritis may raise the suspicion that a faint scarlatinal rash has been overlooked. Ordinary care will prevent the physician from mistaking this condition for adenitis due to tuberculosis, syphilis, leukemia, pseudo-leukemia or mumps.

It is sometimes asked whether glandular fever is a separate and distinct disease. The inflammation of these glands does not differ from the inflammation of lymph glands elsewhere in the body. There is no single specific causative germ, and the course and symptoms merge with those characteristic of other diseases. At the same time the disease may be regarded as a clinical entity, being quite distinct in typical cases, and shading off by imperceptible gradations into allied conditions.

The prognosis is favorable. Complications, such as nephritis, make the outlook graver. Only about four deaths from the disease or complications have been reported.

Treatment.—To prevent the spread of the disease all the members of the household should be advised to use an antiseptic gargle or nasal douche. It does not seem necessary to isolate the patient. There is no specific treatment. Rest in bed during the continuance of fever and pain, a calomel purge with light diet, preferably a liquid diet, the use of an antiseptic spray or gargle, and an ice bag or cold applications to the swollen glands suffice for ordinary cases. Hot applications are preferred by some patients to cold. Quinine,

antipyrene, phenacetine, benzoate of soda, and salol are occasionally useful. Quinine and iron should be given for the anemia which frequently follows an attack.

Between September 1, 1905, and April 12, 1906, there have been seven cases, giving a fairly definite history of glandular fever, seen at the pediatric dispensary of the Johns Hopkins. All were white males between the ages of one and four years. The symptoms were the usual ones—pain and swelling in the neck, etc., followed in a few instances by slight coryza. In one case the child stuffed bread crumbs up the nose a day or two before the onset of the attack. There was one case complicated by acute hemorrhagic nephritis. This patient had had nephritis two years before with scarlet fever.

I will also include here a patient seen in private practice, a white male, aged five years, who was seen early in an attack of typical glandular fever. He had had a typical attack a month before, accompanied by bloody urine for a day or two, but had seen no physician, and had recovered promptly. When first seen the patient had pronounced cervical adenitis, following removal of adenoids, and also had marked hemorrhagic nephritis. The nephritis has gradually cleared up during a month and a half. During this period the patient has had two recurrences of the cervical swelling without apparent cause, lasting for a few days.

The incidence of the disease is indicated by the following figures: Between September 1, 1905, and April 12, 1906, we treated in the dispensary, in addition to the cases mentioned, 19 cases showing adenoids or enlarged tonsils with recurring or chronic cervical adenitis not very pronounced, 44 cases of enlarged tonsils or adenoids without enlarged cervical glands, 58 cases of whooping-cough, and 200 other cases in which cough was a prominent symptom, such as bronchitis, broncho-pneumonia, etc.

REFERENCES.

Korsakoff's review is comprehensive and brings the literature up to 1905 quite thoroughly. Trautmann gives a few additional references in his reports of cases, and gives references to literature describing the lymphatics draining the posterior naris.

The following references bring the literature up to date since Korsakoff's publication:

[1]Pfeiffer: *Jahrbuch für Kinderheilkunde,* 1889, Bd. 29, p. 257.

[2]Korsakoff: *Archiv für Kinderheilkunde,* 1906, Bd. 41, p. 321; Bd. 42, p. 193.

[3]West: *Archives of Pediatrics,* 1896, p. 889.

[4]Schiller: *Journal of the American Medical Association,* August, 1905, p. 401.

[5]Schiller: *Journal of the American Medical Association,* April, 1906, p. 1166.

[6]Vipond: *Archives of Pediatrics,* January, 1906, pp. 11-19.

[7]Wood: *American Journal of the Medical Sciences,* August, 1905, p. 216.

[8]Trautmann: *Jahrbuch für Kinderheilkunde,* N. F. Bd. LX, Heft 3, p. 503.

[9]Trautmann: *Münchener med. Wochenschrift,* 1905, Bd. LII, p. 1101.

[10]Hainebach: *Deutsch. med. Wochenschrift,* 1899, No. 26, p. 419.

In the discussion Dr. O'Donovan said a few words on the importance of this disease.

A CASE OF SARCOMA OF THE HYOID BONE AND LARYNX, WITH EXCISION OF THE TUMOR OF THE HYOID, BASE OF THE TONGUE, LARYNX AND PART OF THE PHARYNX, UNDER LOCAL ANESTHESIA.

By Randolph Winslow, M.D.,
Professor of Surgery in the University of Maryland.

On January 9, 1906, Joseph Ward, age 45, white, tailor by occupation, was admitted to the University Hospital, having been sent in from the throat and nose dispensary, where he was examined by Prof. John R. Winslow. He was at that time suffering from dyspnea, due to a growth in the region of the hyoid bone, which so pressed upon the epiglottis and larynx as to produce difficult respiration and to prevent a laryngoscopic examination of the air passages. The diagnosis was tumor of the hyoid bone involving the larynx. The patient is married and has four healthy children. His parents lived to a good old age, and he does not know the cause of death of either of them. He has had the usual diseases of childhood, as well as smallpox, and 16 years ago had a sore on the penis with suppurating inguinal glands, but this was not followed by any secondary symptoms. Thirteen years ago he noticed a small lump in the left side of the neck, which was excised by Prof. W. W. Keen at the Jefferson Hospital, Philadelphia. Through the kindness of Professor Keen the following history has been obtained:

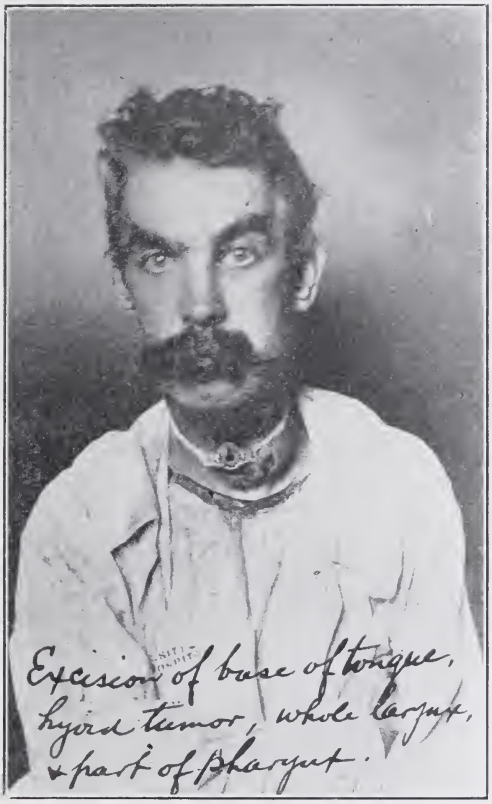
"Ward, Joseph, age 34, was admitted to the Jefferson Hospital on March 31, 1893; discharged April 6, 1893. He had a tumor in the right side of the neck, the size of a hulled walnut. He complained of no pain or any other symptom. The presence of the tumor was the only physical sign. There was no family history of tuberculosis or malignant disease. The tumor was removed by Dr. W. W. Keen April 1, 1893. He found it attached to the hyoid bone and the side of the larynx. Five days later the patient left the hospital with the wound entirely healed."

No pathological examination of the growth was recorded. This history is probably erroneous in stating the tumor to have been

located on the right side, as there was a well-defined scar on the left side of the neck and none on the right, and the patient said the growth was on the left side.

He had been a regular drinker, but never to excess. After the removal of the growth mentioned above he enjoyed good health for three years, when he noticed a recurrence, and it has been increasing in size slowly ever since. About five weeks before admission to hospital the respiration began to be interfered with and there was also some difficulty in deglutition. His voice is altered and he has some cough. He is pale, emaciated, and weak. There is marked dyspnea, with stridor, which makes an examination of the chest difficult. The heart is exceedingly feeble and beats from 110 to 140 times a minute. The apex beat is not visible or palpable, but the heart sounds are clear and the second aortic sound is accentuated. The abdomen presents nothing of importance. There is a large swelling occupying the location of the hyoid bone and extending more towards the left than the right side of the neck. This enlargement is globular, as large as a goose's egg, hard, and freely movable. It is not painful, but causes discomfort. The Adam's apple can be seen and felt below the tumor, and the larynx is not enlarged or displaced. A skiagraphic picture fails to show the hyoid bone, but a shadow of a growth is faintly seen in the area between the jaw and the larynx.

On January 11 his respiration had become so impeded that immediate relief was demanded, and a laryngotomy in the crico-thyroid space was done under cocaine. This relieved his dyspnea and rendered him much more comfortable. He was desirous of having the growth removed, but his condition did not justify such a serious procedure. He was therefore put on tonics, with digitalis, and fed well, and his pulse gradually increased in strength and diminished in frequency, ranging from 70 to 100 per minute, but still of very poor volume. As he still wished to be operated on, it was thought unwise to place him under a general anesthetic; hence he was given one ounce of whiskey every hour by mouth from 3 to 8 A. M., and morphia, grain one-quarter, and scopolamin, grain one-one-hundredth, one-half hour previous to operation, and infiltration anesthesia of the skin with Schleich's solution was effected. On February 1, 1906, he was properly prepared, and while still awake the operation was undertaken and completed. The tumor of the hyoid was first removed with a part of the base of the tongue, when it was seen that the larynx was also involved. The incision was therefore extended downwards in the middle line, the skin reflected, and the whole larynx easily removed without hemorrhage. The end of the trachea was brought out at a lower level and sutured to the skin. A large gap was left, leaving a wide opening into the pharynx. The pharynx was sutured to the base of the tongue and closed in the middle line so as to make a funnel-shaped canal, and the skin was loosely sutured. The patient stood the operation very well, complained of but little pain, and was in as good condition at its close as at its beginning. I am confident he


Excision of base of tongue,
hyoid tumor, whole larynx,
+ part of Pharynx.

would not have survived a general anesthetic. He was returned to bed and put in an almost upright position to facilitate the swallowing of the saliva, and a tracheal tube was kept in the trachea. At first a large soft-rubber catheter was passed from the mouth into the esophagus and water and milk allowed to run into the stomach, but subsequently the lower part of the pharynx opened and the tube was passed into the esophagus from the neck. There was a free discharge of saliva from the opening in the neck, which was kept from entering the treachea by wrapping the tracheal tube with gauze. The incisions healed promptly except a small place at the bottom, and the patient gained in strength. Three quarts of milk, with eggs and whiskey, were administered daily. He soon sat up and walked around the ward, and in a measure enjoyed life, but in the latter part of March there was a recurrence in the lower portion of the neck, as well as in situ, and he gradually failed and died on March 27.

The tumor was a round-celled sarcoma. A few injections of Coley's mixed toxines were given, as well as *x*-ray treatments, without benefit. The autopsy showed extensive metastases in the lungs, bronchial glands, liver, and mesenteric glands, as well as in the tissues of the neck. Laryngectomy, while not frequently performed, is done sufficiently often not to excite much comment, and it is not so much on account of the extirpation of the larynx and contiguous structures that this case is reported as on account of the rare occurrence of neoplasms of the hyoid bone. I regard this as a case of primary sarcoma of the hyoid bone, subsequently extending to the larynx, but of this there is doubt. Professor Hirsh, who examined the tumor of the hyoid, not finding any myeloid cells, is inclined to think the starting point was in the epiglottis. The hyoid bone was completely destroyed by the growth, only some calcareous particles remaining, while the epiglottis was not entirely destroyed, nor was the larynx as much involved as one would expect if the growth had originated in the epiglottis. The patient said the growth began to recur three years after the removal of the tumor by Dr. Keen, approximately 10 years ago. In most of the works on surgery at my disposal there is no mention of tumors of the hyoid bone at all, and the literature on the subject is exceedingly scant. It is stated in Von Bergmann's "System of Surgery" that only two cases of primary tumor of the hyoid bone are found in all literature, but I have been able to find two other cases, which, with the one just reported, makes five. The occurrence of a primary neoplasm of the hyoid bone is then without doubt of great rarity, and even secondary involvement occurs also very seldom. Dr. J. Spisharny of Moscow, in the *Deutsche medicinische Wochenschrift,* Vol. XVIII, page 853, 1892, says "tumors of the hyoid are of the greatest rarity." In all literature he could only find one case of primary tumor and one of metastatic growth of this bone. In the Zurich clinic of Billroth, of 558 cases of neoplasms, there were none of the hyoid bone (*Langenbeck's Archiv,* Bd. X, Heft 3, p. 813). Gurlt, in 16,637 tumors, found none of the

hyoid bone (*Langenbeck's Archiv,* Bd. XXV, Heft 2, p. 421), and Williams (in the *Annals of Surgery,* October, 1891, p. 527) collates 15,481 cases of new growths of the various organs and structures, but none of the hyoid bone. The following are all the cases I have been able to find reported in literature:

Case I.—Enchondroma of the hyoid bone, reported by E. Boeckel in the *Gazette de Strasbourg* in 1862, which the author remarks "is unique in literature."

"A woman, 50 years of age, observed in 1859 a tumor on the right side of the throat, which gradually increased in size. The neoplasm was the size of two fists, fluctuating, and hard at its baselike cartilage. It raised up the inner head of the sterno-cleido-mastoid and pressed against the larynx, then extended under the chin and terminated in a blunt point 2 cm. below the sterno-clavicular articulation. It was somewhat movable, and the skin was not adherent to the growth. The thyroid gland was small and not involved. Swallowing solids was very difficult, but respiration was not impeded. On puncture of the tumor several grams of liquid jelly escaped. There was no pain. Extirpation was done, and the growth was found to arise from the horn of the hyoid bone, which was resected and the tumor easily removed. There was very slight bleeding. The growth was 12 cm. long and 7 cm. thick. It rose from the periosteum of the horn of the hyoid bone, and consisted of hyaline cartilage with a great number of cells. The patient did well until the fourth day, when secondary hemorrhage set in, and notwithstanding the ligature, both external and later common carotid artery, she died of anemia and exhaustion."

This case is quoted by Dr. J. Spisharny of Moscow in the *Deutsche medicinische Wochenschrift,* Vol. XVIII, p. 853, 1892.

Case II.—Tumors springing from the horn of the hyoid bone, causing suffocation through lateral compression of the epiglottis.

"On November 5, 1867, a man, aged 23, appeared, of fair and delicate complexion, who spoke in a very guttural manner, as if his mouth was full of food. Six months previously his voice had become affected, commencing with a cold and sore throat. A swelling formed on the left side of the neck, which affected speech and swallowing, with dyspnea at times, especially at night, and sometimes a little cough. He could swallow solids and liquids, but as the tumor increased in size this varied, and he became thinner. His previous health had been excellent. He became very weak, with a feeble pulse. The fauces appeared healthy. By laryngoscopic examination a rounded tumor the size of a large walnut was seen on the left side of the throat at the root of the tongue and pushing the epiglottis to the right and compressing the epiglottis laterally, so it looked as folded in two. The entrance to the larynx was obstructed. The tumor appeared somewhat ulcerated, and was hard, but not painful. In the neck externally there was a swelling above the thyroid cartilage and connected with the left horn of the hyoid bone. It had increased in size somewhat rapidly of late. No operation was done, and the man returned home,

where he died suddenly on November 9, 1867. The growth was supposed to be malignant, but no microscopic examination was made."

Reported by Sir Duncan Gibb in the *Transactions of the Pathological Society of London,* Vol. XIX, p. 59, 1868.

Case III.—Primary enchondroma springing from the great horn of the hyoid bone. Excision and recovery.

"On March 22, 1891, a man, 25 years old, came under observation. On the right side of the throat immediately below the lower jaw, in the location of the hyoid bone, was a tumor the size and form of a hen's egg. The skin was not altered, and was movable. The tumor was rough, hard and but slightly movable, and was connected with the right horn of the hyoid bone and followed the movements of this bone. It was not painful. The thyroid cartilage was pushed to the left of the middle line. The orifice of the larynx could not be seen, but a lump the size of a walnut could be felt at the base of the tongue, which was rough, hard and but little movable, and was connected with the growth in the throat. The corresponding tonsil was swollen. A laryngoscopic examination was impossible. Swallowing solids was difficult, the voice hoarse, and respiration labored when he was on his back. The respirations were 26 to the minute. The patient was well nourished and the other organs normal. Eleven years ago he noticed that his voice was hoarse. No lump was observed at that time, but five years later the swelling was noticed and grew slowly. Five months before coming to the clinic he began to have dysphagia and marked hoarseness of voice. On April 10, 1891, under narcosis, Professor Sklifosowsky operated in the following manner: An incision was made at the level of the angle of the mouth and extended in a curved manner to the cricoid, the sterno-mastoid, and vessels pulled outwards and the growth enucleated, when it was seen that it had developed from the right horn of the hyoid bone. Releasing the growth was not easy, and was accomplished by blunt dissection with the index finger. The bleeding was slight. Only the facial, lingual, and a few small vessels were ligated. The right horn was excised at its junction with the body of the bone. He was discharged well in a month. After the operation the temperature remained normal, the voice became clear, and the breathing and swallowing perfect. The tumor was irregularly oval in shape, length 7 cm., breadth 6 cm., and thickness 4½ cm. The structure was mostly hyaline cartilage, rich in cells, and the tumor surrounded with a connective-tissue capsule."

Reported by Dr. J. Spisharny, *Deutsche med. Wochenschrift,* Vol. XVIII, p. 853, 1892.

Case IV.—Mixed round and spindle celled sarcoma of the hyoid bone. Recovery.

"The patient was a negro, aged 24 years, married, waiter. No family history of malignancy but of tuberculosis. Has had gonorrhea, but not syphilis. There was a lump the size of an English walnut beneath the chin. The skin was stretched and ulcerated at

one point; the larynx was not involved. The tumor is away from the median line and upon the right greater cornua of the hyoid bone. It has been growing for five months, and has been painful one month, and is now very tender. Deglutition and respiration are interfered with. Chloroform anesthesia. Operation on April 7, 1898. Dr. Dawbarn excised the left external carotid artery. Ten days later the right carotid was excised and the growth ablated. The tumor was encapsulated and easily removed. It was attached to the greater horn of the hyoid bone, and one-half of the hyoid was removed. The mouth was not opened, nor was the thyro-hyoid membrane torn. Some suppuration occurred, but the man recovered and resumed work."

Prize essay by Dr. R. H. M. Dawbarn, "The Treatment of Certain Malignant Growths by Excision of the External Carotids," page 33.

Spisharny also mentions one case of metastatic involvement of the hyoid bone, in which Peter found a metastasis in the body of the hyoid at the autopsy of a person who died of cancer of the esophagus.

Tumors of the hyoid bone, as far as they have been reported, have been either sarcomata or enchondromata in about equal proportions, and in similar cases we may expect to find one or the other of these neoplasms. While one variety is malignant and the other benign, the treatment should be the same, and the tumor should be extirpated with as much of the contiguous tissues as may be necessary. The operation is not attended with extraordinary danger, even when it becomes necessary to excise the larynx and other contiguous structures, but the possibility of a permanent cure depends upon an early removal in the case of sarcoma.

The third paper was by Dr. A. McGlannan on "Tumors of the Breast." In the discussion Dr. Winslow spoke of the great difficulty at times of distinguishing malignant from benign tumors at operation, even with the help of frozen sections, which may sometimes be wrong. Dr. McGlannan agreed with Dr. Winslow as regards this difficulty of immediate diagnosis, and said that he thought the naked-eye appearance of the tumor was of more importance in deciding than relying absolutely on frozen sections.

For paper, see *Journal of the Alumni Association of the College of Physicians and Surgeons,* Vol. IX, No. 1, 1906.

AN ANALYTICAL STUDY OF ACUTE LOBAR PNEUMONIA IN THE JOHNS HOPKINS HOSPITAL FROM MAY 15, 1889, TO MAY 15, 1905.

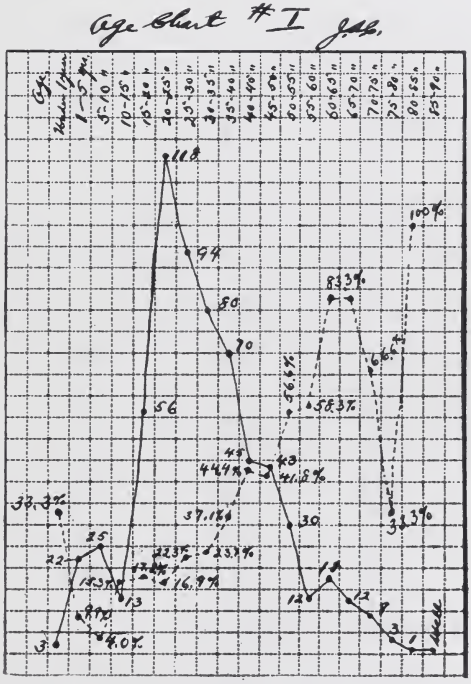
By J. A. Chatard, M.D.,
Assistant in Medicine, Johns Hopkins University.

DURING this period of 16 years 658 patients suffering from acute lobar pneumonia have been treated in the hospital. These include

all patients admitted with the disease, as well as those developing terminal pneumonias.

In these statistics the ether pneumonias do not enter. The figures as regards infantile pneumonia can only be approximately estimated on account of the relatively few cases in a general as compared to a strictly children's hospital.

Of the total number of patients (658), 200 died, giving us a mortality of 30.39 per cent., from which number, if we subtract the 35 terminal pneumonias, we get a mortality of 165, or 25.07 per



Solid line represents the number of patients for each period of years.
Dotted line represents the mortality percentage.

cent. This compares very favorably with the average hospital mortality, though high when compared with the results of private practice.

Year.—There was a steady increase in the number of patients admitted from 1889 to 1899. This may be well accounted for by the growth of the hospital. There was a marked increase, however, in 1900 and 1901, which seems to indicate an increase in the prevalence of the disease itself during those years. In considering the mortality along with these figures, and disregarding that of 1889 on account of the few patients then, we note a high percentage of deaths in 1892, 1893, 1896, 1899, 1900, and with a slight increase again in 1904.

Comparing these figures with the mortality returns from the State Board of Health of Maryland, 1900 showed a definite increase in mortality, our figures for that year agreeing.

Age.—The greater frequency of pneumonia in young adults is well brought out in our figures—as between 20 and 40 years about 55 per cent. of our cases; between 20 and 30 years about 32 per cent. occurred. (See Chart 1.) The mortality curve (dotted line) is most interesting, showing a comparatively high mortality under one year, then a slow, steady rise, with a maximum death-rate between 60 to 70 years.

Sex.—The number of males attacked far outnumber the females, but the mortality among the females is considerably higher:

	Recovered.	Died.	Total.	Mortality %.
Male	379	154	533	28.8
Female	79	46	125	36.80

This increased mortality among the females may be explained partly by their weaker powers of resistance, and also that most women admitted are usually in a poor physical condition.

Race and Nationality.—In the white native population:

	Recovered.	Died.	Total.	Mortality %.
Male	130	56	186	30.1
Female	35	17	52	32.6
	165	73	238	30.6
Foreign	120	50	170	29.4
	285	123	408	30.14

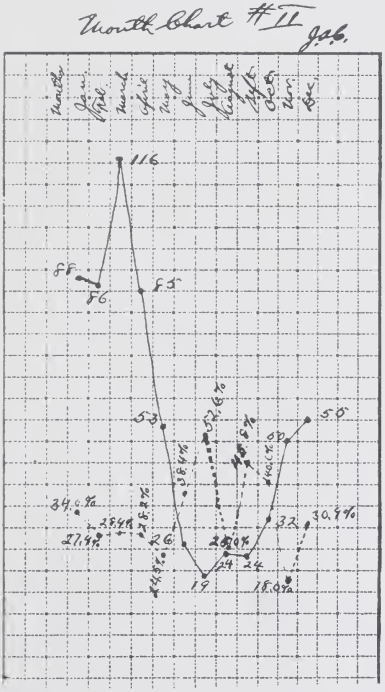
In the negro population there were:

	Recovered.	Died.	Total.	Mortality %.
Male	140	58	198	29.2
Female	28	19	47	40.4
	168	77	245	31.4
West Indies	4	1	5	20.0
	172	78	250	31.20

Among the points to be noted here are that the foreign-born population show a slightly lower mortality than the native white, being almost the same as the male negro; also that, due to the high mortality among the negro female population, the total negro mortality percentage rises above the total white.

Months.—The seasonal and monthly variation in the number of patients and mortality is interesting, as in—

Months.	Recovered.	Died.	Total.	Mortality %.
January	58	30	88	34.09
February	62	24	86	27.4
March	83	33	116	28.4
April	61	24	85	28.2
May	40	13	53	24.5
June	16	10	26	38.4
July	9	10	19	52.6
August	18	6	24	25.0
September	13	11	24	45.8
October	19	13	32	40.6
November	41	9	50	18.0
December	38	17	55	30.9



Solid line represents number of patients admitted during month.
Dotted line represents the mortality percentage by months.

(See Chart 2.) In looking over the chart we are struck at once with the number of patients admitted in March, from which month the number steadily and quickly diminishes through the late spring and summer months, to begin with steady rise through the fall and winter months. Comparing with this the mortality curve (dotted

line), we note the steady and average number of deaths through the winter and fall months, but in the late spring, summer and early fall our mortality is much higher. Owing to the apparent low mortality in August, and the number of our patients being small, it is unwise to draw any definite conclusions as regards increased summer mortality.

Occupation.—As usual, the most frequent occurrence of pneumonia, with a higher mortality, is to be seen in the outdoor occupation:

Occurrence—Outdoor, 55.88 per cent.; mortality, 34 per cent.

Occurrence—Indoor, 44.12 per cent.; mortality, 26.6 per cent.

As in most hospital statistics, we note the preponderance of the laboring classes, with a mortality of from 30 to 35 per cent. In the female occupations, especially in cooking and laundry work, we get a very high mortality—about 38 to 40 per cent.

Habits—Alcohol.—There was a history of alcohol in 426 patients occurring thus in 64.7 per cent., with a total mortality of 30.9 per cent. There was little in the history of tobacco to be of much importance.

Previous Diseases. — Previous attacks of pneumonia was the point of most interest, 88 patients having had one attack, 8 two attacks, 3 three attacks, and 1 four previous attacks of pneumonia.

Condition.—Of the condition of the patients before the onset of pneumonia, 121 had been exposed to bad weather, 19.9 per cent. There were eight cases in nurses and hospital orderlies and three among doctors. In only one of these was there a note of contact with pneumonia patients.

Symptoms.—The cardinal symptoms of pain, chill, cough, and headache stand out prominently at the onset; thus pain in 41 per cent., chills 34 per cent., and coughs 33.9 per cent.; pain in the abdomen 5.6 per cent. In the complaint we note again that cough, pain, and dyspnea are most frequent; thus cough in 32.6 per cent., pain in 56.4 per cent., and dyspnea in 16.5 per cent. Pain in the abdomen was complained of in 6 per cent.; pneumonia was the complaint in 4.4 per cent. In the general symptomatology pain occurred in 525 patients, or 79.7 per cent.; dyspnea next in 447 patients, or 66.4 per cent.; chills in 49.3 per cent., headache 48.63 per cent., and pain in abdomen in 7.7 per cent.

Special Symptoms—Pulse.—The rate of the pulse has been divided into *slow,* when below 90 to the minute, of which there were 22 instances, or 3.3 per cent.; of these, 3 died, or 13.6 per cent.; *medium,* when between 90 to 125 per minute, being thus in 334 patients, or 50.7 per cent.; of these 50 died, or 14.9 per cent.; above 125 per minute it was considered as *rapid,* and it was found so in 289 cases, or 43.9 per cent.; of these 143 died, or 49.4 per cent.

Character.—When the pulse was of good volume and tension the mortality was about 8.4 per cent.; when of poor volume and tension the mortality was 53.1 per cent., and when irregular the mortality was as high as 65.9 per cent.

Cough.—Cough was present in all but 15 patients, in most instances being of a moderate severity.

Temperature.—Subnormal when below 98.5. This temperature occurred in 5 patients, 2 fatal, 40 per cent. mortality; between 98.5 to 102 in 39 patients, 13 fatal, 33.3 per cent. mortality; between 102 to 104 in 181 patients, 49 fatal, mortality 27.7 per cent.; between 104 to 106 in 384 patients, with 106 deaths, 27.6 per cent. mortality. When above 106 the mortality was 55.1 per cent.

From these figures we note that the maximum temperature in the greatest number of patients was between 104 to 106 degrees. The admission temperature was most often between 102 to 104, about one-sixth of the patients entering with a temperature below 100.

Respiration.—The respiratory rate was below 30 to the minute in 48 patients (4 died), a mortality of 8.3 per cent.; between 30 to 40 in 208 patients, with a mortality of 14.9 per cent.; between 40 to 50 in 192 patients, a mortality of 29.1 per cent., and over 50 to the minute in 195 patients, mortality 54.8 per cent.

When the respirations were labored the mortality was 43 per cent.; with cyanosis the mortality was 43.2 per cent.

Sputum.—The quality of the sputum varied a great deal, being typically tenacious, rusty, blood-stained, muco-purulent, and bloody in most instances. Pneumococci were found in the sputum of 93 patients, though they were undoubtedly present in a great many more of the other specimens, but no positive diagnoses were made unless the diplococci found showed a capsule when specially stained.

Involvement of Lungs.—The right side alone was involved in more than half the patients, with a mortality below our general figures; thus the right side alone in 354 patients (53.8 per cent.), with a mortality of 26.5 per cent. The right lower is the most common lobe involved, yet with the lowest mortality; thus in 139 times that the lower lobe alone was involved the mortality was only 15.1 per cent. When the upper and middle lobes of the right were involved the mortality was 51.5 per cent.

The left side alone was involved in 168 patients (25.5 per cent.), with a mortality of 20.2 per cent. Here we note again that the lower lobe is more frequently involved, with a fairly low mortality, which rises quite high (35.5 per cent.) when both the upper and lower lobes are involved. The left lung is involved in about one-quarter of all the patients.

In double pneumonia, which occurred in one-fifth of the patients, the mortality was 54.7 per cent. The most frequent combination of lobes in double pneumonias was that of the right and left lower, occurring in 8.8 per cent., with a mortality of 39.6 per cent.

Bacteriology.—The pneumococcus was obtained from the blood during life in 23 out of a total of 91 patients, or about 25.2 per cent. Lumbar puncture was done nine times, in six of which the pneumococci were found in the spinal fluid.

Joints were aspirated in three instances. Two were negative and one showed the pneumococci.

[*To be Concluded in November.*]

Current Literature.

REVIEW IN NEUROLOGY.

Under the Supervision of Robert Reuling, M.D., Baltimore.

TABES, PARALYSIS, AND PROSTITUTION. Hubner. *Centralblatt für Nervenheilkunde und Psychiatrie,* February 15, 1906, No. 207.

The author has investigated the question whether tabes and general paralysis really occur as seldom among prostitutes as the opponents of the Erb-Fournier teachings claim. He finds, after a study of 179 cases, that 38.4 of prostitutes suffer from post-syphilitic neuroses, tabes, general paralysis, cerebro-spinal lues. In regard to statistics on this subject the reader is referred to the extensive publication appearing in the *Neurological Centralblatt.*

The author believes the erroneous ideas on this subject have been brought about by the fact that, with the exception of Kron's statistics, the examination by others has been on young girls and at a period too soon after luetic infection. The true conditions are only found if the observer keeps track of the subsequent history of the woman, and best, of course, if this inquiry is pursued until the death of the individual.

The proof of the more frequent occurrence of the above-mentioned neurosis in prostitutes as compared with the women of the lower class of society and with women of the other class, he claims, is best obtained from the statistical yearbook of the city of Berlin and also from the stastistics from the Institute at Herzberge. The author admits the difficulties that confront one in reaching a correct view on the subject. He, however, claims that the view is incorrect that tabes and general paralysis are less seldom found among prostitutes than among other classes of women.

* * *

DIFFUSE GLIOSIS OF THE CEREBRAL WHITE MATTER IN A CHILD. W. M. Bullard, M.D., and E. E. Southard, M.D. *The Journal of Nervous and Mental Diseases,* March, 1906, Vol. XXXIII, No. 3. (From the Pathological Laboratory of the Boston City Hospital.)

The case here reported was that of a child who, after a fall on the back of the head, gradually lost power to walk, grew deaf, dumb, blind and stupid, and died 12 months after the fall. The autopsy showed a peculiar overgrowth of neuroglia, with some destructive results, confined to the white matter of the posterior parts of the cerebrum, optic thalami, and areas in the white matter of the cerebellum.

Clinical History.—E. T., six years old, was first seen on January 16, 1904. Family history good. The patient had always been well

up to the time of the present trouble, except for measles when three years old.

Present Trouble.—Six months ago, while playing, he fell backward down three steps. He was not unconscious, but got up himself and came upstairs crying. He had some nose-bleed and possibly bleeding from one year. The night following he was feverish and restless, but not apparently delirious. The next day he seemed well, and went out to play as usual. His nose bled whenever his face was washed. Since the accident he has been "nervous," and for five months he has had some difficulty in walking, staggering so that he is obliged to put out his hands to steady himself. Has never fallen from this cause. Mother thinks he is becoming stupid. He has frequent micturition; is very deaf, and has been taken to the eye and ear infirmary, where operation for adenoids was advised.

Physical Examination.—Patient now obeys no directions, and does not appear to understand or notice what is going on about him. Cries when examined. Walks with very short steps, swaying from side to side. No aural signs to account for the deafness, which is apparently of nerve origin. Some atrophy of each optic nerve, but not enough to account for almost total lack of vision. The latter is presumably of cerebral origin.

Operation.—July 18; Dr. Monks. Skull trephined about one and one-half inches behind and one inch above right ear. Dura opened; pia slightly thickened, edematous. Several drams of clear amber-colored fluid drawn from lateral ventricle. Died July 20.

Anatomical Findings.—Permission was granted to open the cranial cavity. The examination was made 15 hours after death. Development fair. Nutrition good. Pupils equal, 5 millimeters wide. Circumference of skull 53 centimeters. Frontal suture well marked. Surgical opening 1 centimeter square in squamous portion of right temporal bone, 5 centimeters above and behind external auditory meatus. Dura everywhere adherent to calvarium. Brain with pia mater weighs 1455 grams. Pia mater and vessels normal. Convolutions symmetrical. Substance very firm toward occiput. Ventricles contain a normal amount of fluid tinged with blood. Cruor clot, 2 centimeters in diameter, in descending horn of right ventricle. The white matter of the posterior part of the centrum semiovale in both hemispheres is replaced with grayish or straw-colored slightly translucent material of a dense consistency. The lesion is somewhat sharply limited to the white matter; the cortex, of a paler color, sinks below the surface of section. In the right occipital region there is a narrow layer of less white matter between cortex and lesion. The areas of increased density were roughly marked out at autopsy. On the right the lesion involves and in part replaces the white matter of the occipital, parietal, and temporal lobes. The right optic thalamus is somewhat firmer than normal. In the left hemisphere the lesion is still more marked, and almost everywhere replaces the white matter of the occipital, parie-

tal, and temporal lobes. The left optic thalamus is even firmer than the right. The lesion on the left side stretches at least 1 centimeter anterior to a frontal plane taken just in front of optic thalamus. Pieces were removed for fixation in Zenker's fluid, and the rest of the brain was hardened in 10 per cent. formaldehyde.

Microscopic Findings.—The sclerosis of the cerebral substance preserves on microscopic examination the remarkable limitation to the central white matter which was noted in the gross. Except in the optic thalami, the limits of the white matter are nowhere transgressed by the neuroglia overgrowth. The exterior of the lesion in some parts of the occipital region follows the contour, and coincides precisely with the inner limits of gray matter. But in general the sclerosis corresponds rather to the body of white matter known as the centrum semiovale, and may spare the intragyral portion of the white matter. In spite of the massive character of the lesion and the compactness of many portions of its substance, the overlying cortex fails to show major lesions, such as secondary changes in nerve cells due to the loss of their processes, or accumulation of phagocytic cells in vessel sheaths, or a reaction on the part of the neuroglia. It is noteworthy that even the upper or subpial layer fails to show a reaction on the part of the neuroglia, despite the frequency of this reaction under numerous conditions. The pia mater and its vessels are likewise free from lesion.

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Contributions to the Knowledge of Hereditary Nervous Disorders. Jeno Kollarits. (Clinic of E. Jendrassik.) *Deutsch. Zeitschrift f. Nervenheilkunde,* Vol. XXX, Nos. 5-6.

This article will no doubt prove of special interest to one interested in the subject of the hereditary factors in the etiology of nervous diseases. The cases presented are of special interest, well studied, and the pathological findings in some show well-marked lesions. The article comprises 70 pages, and there are 33 illustrations. The important hereditary diseases of the muscular system, so clearly defined and studied by Erb and his pupils, forms an important part of the study. The first case presented is one of hereditary muscular atrophy, with atrophy of the skeleton. Tremor in the upper extremities, mystagmus, increased reflexes. In one case belonging to this family the histological findings are described as degenerations in the pyramidal tracts and mild atrophic changes in the columns of Goll.

In this family four children were similarly afflicted. There are also evidences of beginning neurosis in the daughter of one of the healthy sisters.

The eldest member of the family, a man, aged 36 years, showed that in his twelfth year his gait became uncertain. Since his twentieth year he has been bedridden. During the examination his head showed a fine tremor, noticeable about the lids, neck, muscles, upper trunk, and upper extremities. This tremor is constant. The teeth can only be separated a distance of 1 centimeter. Move-

ments of the tongue are restricted, and the speech is slow and hesitating. The muscles of the shoulder girdle are fairly well preserved. The upper arm shows atrophy, and the lower arm musculature is of firm consistency, atrophic. These changes are especially marked in the muscles of the hands, so that the tendons of these stand out prominently, the right thumb being strongly flexed into the palm. The left thumb lies close to the first joint of the index finger. The man is unable to assume the upright position in bed. The spinal column is scoliotic, and stretching same is impossible even in recumbent posture. The lower extremities are crossed, the right lying uppermost. The thighs are firmly pressed together and can only be moved a degree, immediately resuming their former position. The toes are strongly flexed. Urine is voided at frequent intervals, but is normal. Bowels only move once a week. Sensation normal; hearing somewhat below par.

Autopsy.—The upper portion of the spinal column is turned towards the right, the scoliosis being most marked about the sixth dorsal vertebrae. The lumbar portion is, however, turned slightly towards the left. The vertebral substance is sclerosed. The upper extremities are so strongly flexed at the elbows that without tearing tissue they cannot be moved. The legs are flexed at an angle of 45° with the thighs. The right knee is adducted, the left normal. The body in general is emaciated to a marked degree, there being practically no subcutaneous fat. The pectoralis major muscles, those of the neck and upper arm, are relatively well preserved, in marked contrast to most other muscular tissue. The greatest diameter of the right leg is 17 centimeters, that of the left 21 centimeters. The semitendinosus and semimembranosus and biceps appear as mere strongly flexed tendons. The muscles, however, showing the greater changes are the gastrocnemius and soleus. The tibialus posticus is soft and slightly grayish in tinge.

The pia mater is thin, is easily removed, and the cerebral nerves normal.

The spinal canal is wide, the dura thick, the pia thin and translucent. The spinal cord is broad and flattened; the septa are deep. The sections of same are white; the gray substance is everywhere of thin appearance. The spinal roots are soft and of normal thickness.

Microscopical Examination.—Sections for Weigert, Nisl, and Marchi staining were prepared.

Sections taken from the motor area of the brain cortex fail to show any abnormalities either in cells or fibers. The cerebellum is normal. In the sections of the spinal column the following changes were found:

In the region of the first cervical roots both pyramidal tracts show a slight thinning of fiber elements in preparations stained by the Kulschitzky method. This change is symmetrical. The anterior pyramids are intact. The columns of Goll are also thinned. Remainder of white substance normal. Gray substance normal; no Nisl changes.

In the midcervical regions the conditions are about normal, whereas in the lower cervical regions more marked pathological conditions exist. The pyramidal column shows a considerable diminution in their fibers throughout, the change being symmetrical. The columns of Goll showed a fainter stain than normal. The anterior pyramidal tracts are about normal.

The dorsal sections of the cord show a marked flattening of substance. The gray substance is well developed. The lateral pyramidal tracts show a progressive want of fibers, which is symmetrical on both sides, but the changes vary at various levels. The center of these is white and the border fibers stain a light gray. Under the microscope isolated nerve fibers can be seen in the atrophic white areas. In the center of Goll's column a hardly-discernible bleaching in fiber staining is found. The remainder of the white substance, including anterior and posterior roots, is intact. No Nissl changes here.

At the twelfth dorsal root the lateral pyramidal tracts are almost entirely atrophic. Goll's column shows no changes here. The changes described above in the lateral pyramidal tract persist throughout the lumbar and dorsal regions of the cord. In the filum terminale no atrophy of fibers could be demonstrated. The pathological changes in the muscles were marked. The individual dimensions of fibers varied greatly. In the gastrocnemius the following measurements will show these differences: 21.9, 17.5, 13.1, 6.6 micromillimeters, etc. The muscle nuclei are increased, irregular, rod-shaped, and form an almost continuous line. No vacuole formation is seen.

Book Reviews.

THE NATURAL LAWS OF SEXUAL LIFE. Medico-Sociological Researches. By Dr. Anton Nystrom, Stockholm. Authorized translation from the third Swedish edition by Carl Sandzen, A.M., M.D., Ph.D., Professor of Physical Therapeutics, University of Kansas School of Medicine; Author of Massage, Swedish Movements, and Allied Physical Therapeutical Methods. In one handsome 8vo volume of 260 pages, bound in cloth. Sent postpaid on receipt of price, $2. Kansas City, Mo.: The Burton Company. 1906.

This book, so the translator says, has had several editions in Swedish, German and French, and equal consideration he thinks will be given by the "enlightened part" of the English reading public. One edition will suffice for America, though it will perhaps be difficult to confine the distribution of the book to the "enlightened" reading public. It is simply one of those nasty casebooks of which too many have been translated into English. Says the author: "Works have been published purporting to cover this subject, but they usually have been lacking in scientific truth and purpose." Quite so. It would be equally true in any language, and as appropriate after as before the appearance of Dr. Nystrom's book.

Announcements.

Receipt is acknowledged of the following books:

A Compend of Operative Gynecology. By Wm. S. Bainbridge, M.D. Publishers, the Grafton Press. 1906. Price $1.

Abbott's Alkaloidal Digest. By W. C. Abbott, M.D. Publishers, the Clinical Publishing Co., Chicago. 1906.

Progressive Medicine. Vol. 2. Edited by Hobart Amory Hare, M.D. Publishers, Lea Bros. 1906.

Transactions of the Florida Medical Association for 1906. Held at Gainesville, Fla.

International Clinics. Vol. 2. J. B. Lippincott Company. Price, cloth, $2 net.

Manual of Anatomy. Vol. 1. By A. M. Buchanan, M.A., M.D., C.M., F.F.P.S., Glas. Publishers, W. T. Keener & Co. 1906. Price $2.75. Vol. 1.

First Annual Report of the American Oncologic Hospital for Year Ending December 31, 1905. Publishers, the Holmes Press, Philadelphia.

The Influence of the Menstrual Function on Certain Diseases of the Skin. By L. Duncan Bulkley, M.D. Publishers, Rebman Company. 1906.

The Prophylaxis and Treatment of Internal Diseases. By F. Forchheimer, M.D. Publishers, D. Appleton & Co. 1906.

Annual Report of the Bureau of Health of the Philippine Islands. Period from September 1, 1904, to August 31, 1905.

A Non-Surgical Treatise on Diseases of the Prostate Gland and Publishing Co., Chicago.

SAUNDERS' NEW BOOKS.

Messrs. W. B. Saunders Company announces for publication in the early fall the following excellent and practical works:

Keen's Surgery: Its Principles and Practice (Vol. I).
Sobotta and McMurrich's Human Anatomy (Vol III.).
Webster's Textbook of Gynecology.
Hill's Histology and Organography.
McConnell's Pathology.
Morrow's Immediate Care of the Injured.
Stevenson's Photoscopy (Retinoscopy and Skiascopy).
Preiswerk and Warren's Atlas of Dentistry.
Goepp's State Board Questions and Answers.
Lusk's Elements of Nutrition.

The most notable announcement is the new work on surgery, edited by Dr. W. W. Keen, complete in five octavo volumes and containing over 1500 original illustrations. The entire work is written by the leaders of modern surgery; men whose names are inseparably associated with the subjects upon which they have written. Without question Keen's Surgery will represent the best surgical practice of today.

MARYLAND MEDICAL JOURNAL.

JOHN S. FULTON, M.D., *Editor.*

Associate Editors:

THOMAS R. BROWN, M.D. | HUGH H. YOUNG, M.D.
ROBERT REULING, M.D. | JOSE L. HIRSH, M.D.

BALTIMORE, OCTOBER, 1906

A PASSING PHASE OF THE BALTIMORE WATER QUESTION.

THE perennial discussion of Baltimore city's water supply has reached an interesting phase. The Water Board, acting through special counsel in Baltimore county, submits to each householder whose drainage pollutes a tributary of Lake Roland an inexpensive plan of sewage disposal on his own property. The method is a variation of that which bears the name of Waring, and drawings are furnished showing the construction of a household unit. The cost, it is said, will be between $40 and $80 for an ordinary family. The suggestion is offered as the cheapest mode of avoiding liability under the law on pollution of streams. It is understood that those who install this device will, in the opinion of the Water Board, cease to be polluters of the city's water supply, and those who do not install this or a better device will be prosecuted.

It is said that many householders have accepted the suggestion of the Water Board, but among the objectors there are two well-known and highly-esteemed physicians, who have brought the question up in the Baltimore County Medical Society. These gentlemen contend that the method proposed will not do Baltimore city any good, and will create an unhealthy nuisance wherever it is installed. They further declare that it is impossible by any practical means to render the water of Towson run fit for admission to the general water supply. This stream certainly, and probably the whole Lake Roland watershed, they say, should be abandoned. Since both of these gentlemen are physicians, and both have experience in public-health work, their opinions carry weight against the project of the Water Board.

It is the duty of the Water Board to secure to the city all its rights in the streams, but it is not the duty of the Water Board to advise polluters concerning the means of avoiding pollution. To offer such advice may, under circumstances, be expedient, but in general it is unwise, because the city may thereby forfeit recourse in law against pollutions arising through failure of a plan recommended by the city and carried out in good faith by the polluter. When the plan suggested, as in this instance, consists of many separate installations in as many different places and operated by as many different persons, the risk of failure includes, besides the uncertainties of design and construction, the uncertainties of situation and of human agency. It is conceivable, therefore, that the city might not derive the bene-

fits expected from a good contrivance, or might be seriously disabled by the general adoption of a poor contrivance. The objection that the plan proposed in this instance will not benefit the city is hardly an eligible argument for the polluter. The polluter has no responsibility concerning the merits of the plan, and his liability on account of pollution is equally well voided by adopting the proposal, whether it be good or bad for Baltimore city.

The contention that the method of disposal will create dangerous nuisance where installed, if it be a sound contention, may very properly be opposed to the suggestion of the Water Board; and since the decision on this point belongs exclusively to Baltimore county, it may defeat this particular project, whether the contention is in fact reasonable or unreasonable. If the county authorities believe that public health in the county is likely to be endangered, it will be their duty to cause the removal of the plants already installed and to forbid the construction of others.

No one can gainsay the right of the county authorities to prohibit the construction of new disposal plants, but the Water Board can restrain the effort to remove existing plants unless they are replaced by other means of disposal satisfactory to Baltimore city. It is not likely that the county authorities will incur a liability as large as this. If the objectors receive no support from official sources, their fears about the proposed device as a cause of local mischief will have only the weight of individual opinion, and in court will avail them nothing. On the contrary, this argument, the only one which they can offer against the Water Board's project, may involve them in a more serious difficulty. There is no doubt about the power of the city, through the courts, to restrain them from polluting the stream. A court order on this subject will not be specific except as to the time allowed for compliance. The polluter must do whatever is necessary, and must ascertain for himself what is necessary. The Water Board need not and should not submit another proposition, and probably would not approve in advance a method proposed by the polluter. It is possible, indeed, that the polluter, if defeated in court, might have to maintain on his premises for an indefinite time a sewage experiment station for the benefit of Baltimore city.

The fact that the Water Board has made a definite proposal may reasonably be construed as a confession of weakness. Most cities are, in fact, but feebly defended against pollution of their sources of water supply, but they are strong enough to inflict more punishment than individual offenders can bear. If the matter is vigorously pressed in the courts, the difference between a litigation and a society discussion will prove rather disheartening to polluters. The court will not inquire whether a stream flowing to the city's confines is a proper source of water supply, but whether the city's interests are injured by an act of the opposite party in the action. The court will not inquire of conflicting riparian interests which is the older, or whether the act complained of is the sole cause of injury, or whether the complainant will be materially benefited by one or by a thousand actions at law, or whether the controversy could be better settled out of court or by a different procedure in court. Finally, if a polluter should plead that in abating a nuisance injurious to another he will of necessity set up another nuisance injurious to himself, he will learn that there is at least one

small area in law which coincides precisely with common sense and decides this point against him.

It will be found that a city may, within broad limits, choose its own path toward the security of its rights, and may rest or proceed at will, just as a business man, who may or may not need money, may sue any, all or none of his delinquent debtors. The Water Board might admit the intention ultimately to abandon the Lake Roland supply; that the special counsel in Baltimore county is more expensive than the diversion of Towson run; that the suggested disposal scheme is inapplicable to a majority of the residences on the watershed; that the suits now instituted are the only ones so far determined upon; that these suits, if successful, may not render the Lake Roland supply fit for drinking; that the whole water supply of Baltimore will eventually be purified by filtration at the city's expense—all this may be admitted without impairing the city's right to enforce on the inhabitants of the watershed such conduct as will prevent all avoidable injury to the city's interests in the streams.

For the sake of avoiding injury to the oyster beds, Baltimore is spending millions on the purification of her own sewage, and has done this without pressing the reasonable contention that her raw sewage could be discharged into Chesapeake bay without demonstrable injury to the oyster beds. Last winter at the General Assembly the city sought permission to spend other millions in the purchase of land and construction of impounding dams on the watershed in Baltimore county. The Baltimore county delegation was able to defeat this purpose of Baltimore city, but it is most unlikely that the county authorities will adopt an open policy of obstruction toward any and every effort of the city to secure a sufficient and safe water supply.

All cities which depend upon surface streams pursue the same route toward the acquisition of a satisfactory water supply. Progress is made from one expedient to another, and no city avoids any of the usual expedients because experience elswhere has shown its futility. Regarding this spectacle superficially, one might conclude that municipalities are blind. Sometimes they are in fact very short of sight, but the most enlightened government cannot, apparently, conduct a great city by the shortest possible route to the best solution of any large problem. Communities jostle each other as individuals do, and in States where cities are numerous it has been found advantageous to create a kind of court for the arbitration of the disputes which are constantly arising in the adjustment of growing communities to their physical surroundings. In New York any corporation or community which desires to install a new sewerage system or to alter an old one must submit its project to a commission whose business it is to weigh all the sanitary interests affected or likely to be affected and to give or to withhold approval of the plans submitted. This commission may approve or disapprove in whole or in part, and no part of the work proposed can be undertaken without the approval of this commission. In Massachusetts, Ohio, and Pennsylvania the State Board of Health exercises these powers, and in Minnesota the State Board of Health has approximately equal authority. In these States the problems of water supply and sewage disposal are stripped of many practical difficulties, and it can be said that every State needs some central authority charged with these useful functions.

Medical Items.

BALTIMORE.

THE *American Magazine*, a new venture of the Phillips Publishing Co., issues its first number in October. Among its contents one finds an article of Dr. Leonard K. Hirshberg on "Popular Medical Fallacies." Dr. Hirshberg considers the popular notions about boils, about poultices, herb teas and other articles of domestic materia medica, about common colds, nose-bleed, malaria, etc.

THE new building given by Mrs. S. L. Frank to the Hebrew Hospital in memory of her husband will be called the "Doctor Samuel Leon Frank Memorial Hospital." It will be located on the grounds of the present hospital, and will be the principal hospital of the institution. Dr. Harry Adler has been elected to succeed Dr. Frank as president of the Hebrew Hospital and Asylum.

WE note in the September 8th issue of the *Medical Record* a note that Dr. William Osler is now 60 years old and that many are speculating whether he will resign as Regius Professor of Medicine at Oxford in consistency with the views so widely imputed to him. The flurry about Dr. Osler's famous farewell address spread broadcast the information that Dr. Osler is a '49-er, and has, therefore, three years of youth ahead of him.

THE Board of Managers of the Maryland State Hospital for Tuberculosis held its first meeting in the Fidelity Building, Baltimore on September 21. There were present Governor Edwin Warfield, State Treasurer Murray Vandiver, Comptroller of the Treasury Dr. Gordon T. Atkinson, ex-Governor John Walter Smith, Dr. Charles M. Ellis of Cecil county, Guy Steele of Dorchester county and Dr. Curley of Frederick county. Ex-Governor John Walter Smith was elected president of the board. Committees were appointed on choice of a site, on scheme and on the selection of a secretary. Drs. H. Warren Buckler and Henry Barton Jacobs were absent. The board will meet again in October.

MARYLAND.

THE semi-annual meeting of the Medical and Chirurgical Faculty was held at Annapolis on Thursday and Friday, September 27 and 28, Dr. Hiram Woods presiding. Through the courtesy of Governor Warfield the old Senate Chamber in the State House was the place of the general meetings. The opening session was held on Thursday morning, the Governor making the members an address of welcome. Dr. Hiram Woods, president of the Faculty, responded to the Governor's remarks, acknowledging His Excellency's intelligent interest in the medical man's efforts for the public good and calling attention to important public services enjoying the especial attention of medical men. After Dr. Woods, Dr. H. R. Gantt, president of the Anne Arundel County Medical Society, made an address of welcome. After this came papers by Dr. W. F. Elgin of Glenburn, Pa., on "Some Facts the Physician Should Know in Reference to Vaccine and Vaccination," and by Dr. Wm. Hubert Pearce of Baltimore on "Medical Organization."

After adjournment the members were informally received at the Executive Mansion. The afternoon was spent visiting the Naval Academy. In the evening Dr. R. S. Rossiter, past assistant surgeon, U. S. N., delivered an address on "Leprosy." This lecture was given in Boucher's Casino, where the members of the Faculty and the visitors were entertained by the Anne Arundel County Medical Society.

On Friday morning the Faculty again met in the old Senate Chamber. The program was as follows: "Review in Surgery," by Dr. Alexius McGlannan; "Review in Medicine," by Dr. Louis V. Hamman; "A Rapidly Fatal Case of Landry's Paralysis, with Subsequent Study of This Disease," by Dr. C. W. R. Crum; "Indications for Paracentesis of the Drumhead," by Dr. Harry Friedenwald; "The Passage of Nails, Glass and Other Foreign Substances Through the Alimentary Tract," by Dr. Owensby. The afternoon was devoted to an excursion on the steamer Standish, which vessel was placed at the disposal of the Faculty through the courtesy of Hon. Charles J. Bonaparte, Secretary of the Navy. The House of Delegates met on Friday morning at Carvel Hall.

THE State of Maryland has been admitted by the Census Bureau into the class of "Registration States." This means that the mortality registration in Maryland now exceeds 90 per cent. of numerical completeness. It seems an unflattering commentary on Maryland's

wideawakeness that successful mortality registration begins in 1906. The first serious attempt at vital statistics was made in 1898, and the first practical law on the subject was enacted in 1900. We have discreditable solace in the fact that but 10 States are ahead of us in this matter, and a two-penny pride in the fact that Maryland is the first of the Southern States to be admitted to the "Registration Area." Pennsylvania and Colorado are also recognized as registration States, beginning with January, 1906. The earlier registration States were Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey and Michigan, the tenth being the District of Columbia, which is practically the city of Washington.

GENERAL.

Dr. J. H. Carstens is a candidate for the mayoralty of Detroit.

Pittsburg is suffering an unusual epidemic of typhoid fever. Epidemics of typhoid are usual at Pittsburg, but the present epidemic is of extraordinary dimensions.

In Birmingham, Ala., on August 16 24 warrants were issued against physicians for failure to report births. It is said that several of the physicians were fined, and all were warned that heavier penalties would be assessed in case of future offense.

The State Board of Health of Kansas is engaged in a census of tuberculosis in that State. The physicians are the sources of information, which will include, besides the number of cases, the supposed cause in each case, the stage of the disease and the previous condition of health.

The first number of the *West Virginia Medical Journal,* published by the West Virginia Medical Association, appeared in August. The publication committee is Dr. S. L. Jepson, Dr. L. D. Wilson and Dr. John L. Dickey, and the publication office is in Wheeling. It is a bimonthly journal, and the subscription price is $1 a year.

Dr. Philip S. Wales, Medical Director, U. S. N., retired, died in Paris on September 15. Dr. Wales was born in Annapolis in 1837 and graduated in medicine at the University of Maryland. He entered the U. S. Navy immediately after graduation, and became a surgeon in 1861. In 1896 he was retired on account of age.

The Delaware Antituberculosis Society has acquired several acres of land near Newcastle through the gift of a member of the Du Pont family, and proposes to begin at once the treatment of consumptives in tents. As soon as possible a permanent sanatorium will be constructed and a tuberculosis dispensary. Dr. John J. Black of Newcastle is the leader of the movement.

The splendid new buildings of the Harvard Medical School were dedicated on September 25 and 26. An academic session was held at Sanders' Theater on Wednesday, the 26th, when addresses were made by the president of the University and Dr. Wm. H. Welch of Baltimore, after which honorary degrees were conferred. In the evening the triennial dinner of the Harvard Medical Alumni was held in Memorial Hall.

The druggist of St. Luke's Hospital, Chicago, received a prescription for urotropin and dispensed instead atropin. The results were fatal and the druggist was discharged. The coroner's jury recommended that the druggist's license should be revoked. One wonders whether someone besides the druggist should not have been also severely disciplined on account of this blunder. The illegible handwriting of many physicians might be improved by appropriate punishments.

Two large and costly tuberculosis sanatoria, one in Belgium and the other in France, are said to be practically empty all the time. The reason is believed to be that the consumptive wage-earner will not relinquish his occupation so long as he can work, and by the time his working capacity is lost he is too far gone to derive benefit from treatment. The opposite condition of affairs in Germany is attributed to the compulsory insurance laws and to the alertness of the companies in detecting early tuberculosis and removing the sufferer at once to a sanatorium, supporting his family during his absence.

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TUBERCULOSIS OF CATTLE—HOW IT MAY BE REPRESSED, AND ITS RELATION TO THE PUBLIC HEALTH.

By Leonard Pearson, B.S., V.M.D.
Philadelphia.

(*Continued from October Number.*)

The introduction of a general system of dairy inspection would perhaps have made more rapid progress if it had not been for the introduction of the tuberculin test. The tuberculin test is an extremely accurate method for the diagnosis of tuberculosis in living cattle. By means of it even the very early cases of infection can be discovered, even before the disease has reached a stage that renders the afflicted animal dangerous to other cattle or to the consumer of its products. This test has furnished the means for obtaining very much more accurate knowledge than was ever before possible, with regard to the distribution of tuberculosis among cattle. It has been found during the past 15 years, since this method of examination has been available, that tuberculosis prevails very much more widely than was formerly known. We reckon now as tuberculous every animal that reacts to the tuberculin test. This means practically every animal that is infected in any degree. Formerly only such animals were classed as tuberculous as showed physical signs of tuberculosis, and so only the more advanced and rather extreme cases were counted, the others having escaped detection.

The tuberculin test has shown such an appalling amount of infection among the dairy cows of some regions that the extermination of such animals cannot be seriously considered. It would be highly unjust to the owners of such animals for the State to slaughter them without compensation, and for the State to pay for them would require an enormous and impossible appropriation. More than this, it is unnecessary. But the cost of exterminating animals afflicted with open or clinical tuberculosis, tuberculosis that may be detected by physical examination, falls within such limits as to

make the plan feasible. In Massachusetts, for example, the indemnity for such cows amounts to about $30,000 a year.

It is unfortunate that so many people are unwilling to support a proposed improvement because it is not ideally complete and perfect. Because such an inspection as I have outlined will not lead to the *complete eradication* of tuberculosis among cows, and will not insure the production and sale of milk *wholly free* from tubercle bacilli, some people are unwilling to accept the 90 per cent. gain that will come from the application of this system, and consider it better to go along under existing conditions than to adopt any method that is short of ideal. I believe that such a policy is shortsighted and unwise. True reforms are not established at one stroke, they grow. If too much is attempted, the expense and annoyance and the difficulties of a new situation may lead to the abolition of the entire effort which, in the meantime, has lost reputation to such an extent that it becomes more than ever difficult to effect any advancement whatever in that particular field.

But if an ideal condition cannot be obtained with relation to the general milk supply of a large city, it may be obtained on a small scale. In nearly every large city there is some special milk supply that is wholly above reproach. Being sold under the certificate of a commission, milk of this character is commonly known as "certified milk." To the credit of Baltimore it should be said that certified milk on sale in your city, was recently awarded the highest prize at the National Dairy Show held in Chicago. Such milk is ideal.

In searching for a reason for the tardy development of the application of sanitary methods on dairy farms we find that it is chiefly due to lack of knowledge and indifference on the part of the consumer. In the long run, the consumer is sure to get what he demands and is willing to pay for. People who are willing to accept any milk that is delivered to them, with no knowledge as to its antecedents, may be sure that they will not get milk of high quality. Until consumers and physicians know what clean milk is, and demand clean milk, and demand information as to the conditions under which milk is produced, the production of safe and clean milk will not be encouraged.

It was found through investigation made three years ago by the Keystone Veterinary Association in Philadelphia that nearly all the hospitals and public institutions in that city were buying milk as they would buy coal, from the lowest bidder, and without any standards for inspection or requirements as to the cleanliness and the sanitary conditions of the milk, the farms or the cows. Further investigation showed that much of this milk came from such sources that it could not be safe or clean. The situation is now better. Some of the hospitals require information and a guarantee as to the kind of milk that is supplied to them.

There must be some means of controlling the accuracy of reports of milk dealers as to the conditions governing their supplies.

This means should be furnished by the Department of Health of the city or by the Livestock Sanitary Board of the state.

Heretofore, nearly all of the work that has been done in this direction has been done to repress tuberculosis of cattle for the purpose of controlling it *as a disease of cattle,* just as contagious pleuropneumonia and Texas fever are controlled as diseases of cattle, and not on account of any relation of these diseases to public health. As a disease of cattle alone tuberculosis is of sufficient importance to justify expenditures very much greater than have yet been made for its control in any state.

The method for controlling tuberculosis of cattle that has proven to be most efficacious is that based on the detection of tuberculous animals by the use of the tuberclin test and their isolation. If all of the tuberculous cattle in the country could be detected and then separated from contact with healthy cattle, and if their milk could be sterilized by heating before being used, tuberculosis of cattle would not progress from that time, and it would become extinct with the death of the last tuberculous animal in quarantine. But the difficulty of putting this system into operation generally, is due to the great extent to which tuberculosis prevails and the absolute impossibility for any existing organization to make the necessary examinations and exercise the control required to make the plan effective. Denmark has done more in this direction than any other country.

During the past four years considerable work has been done by the Livestock Sanitary Board of Pennsylvania for the purpose of developing a practicable system for the immunization of cattle from tuberculosis. The principle of the system that has been employed is quite the same as that first employed and described by Pasteur for the vaccination of animals against certain infectious diseases by the use of the attenuated but living virus of the disease to be prevented. This principle was made use of in America a number of years ago with relation to tuberculosis by Dixon (1889), Trudeau (1892), and de Schweinitz (1894). The first experiments upon the immunization of cattle from tuberculosis by the use of injections of living tubercle bacilli were made in England by McFadyean. Von Behring in Germany has done considerable work in this field.

The Pennsylvania work has been conducted on rather a large scale and for the purpose of testing, comparatively, different methods for the vaccination of cattle. These tests have included a great variety of methods, that is, of vaccinating materials and of modes of administration.

The vaccines used with best results consist of tubercle bacilli of human type. These are injected into the circulation. The animal resists infection by these organisms, and the development of this resistance makes it possible for the subject to thereafter resist infection by the more virulent bovine tubercle bacilli.

This process has been tested so fully that there is no longer any doubt that the principle upon which it is based is sound.

There are some differences of opinion as to the way in which the vaccine should be prepared—as to whether it should be dried and its vitality reduced after the method of von Behring, or whether it should be used moist and fresh after the Pennsylvania plan. There are also differences of opinion as to the proper dosage and as to the intervals that should elapse between successive vaccinations.

We have worked out a method which we know is effective and which will positively protect cattle against very severe natural exposure for years. It is highly probable that better methods will be developed, but it is satisfactory to have one available now that is well proven. Our method requires each animal to be vaccinated three times at intervals of a few weeks. By this means there is conferred a high degree of immunity that lasts for such a long time that it is of great practical value. Whether immunity lasts for life can only be determined by more prolonged trials.

But even this very valuable system cannot be applied to all dairy cattle on account of the tremendous expense. It will come into use, but gradually, being first applied where the need is greatest. It will not take the place of all other methods for controlling tuberculosis, but will be used in connection with them and, while it will aid in the eradication of bovine tuberculosis, it is, and for a long time will continue to be, advisable to follow the plan for the frequent physical inspection of dairy herds that I have outlined.

In the meantime bovine tubercle bacilli need not be fed to infants, for certified milk is available, and other milk may be rendered safe in respect to this factor by adequate pasteurization.

SOME OF THE MANY USES AND THE METHOD OF ADMINISTERING NORMAL SALT SOLUTION.

By A. Aldridge Matthews, M.D.,

Surgeon St. Luke's Hospital, Spokane, Wash.

READ AT THE NORTH IDAHO STATE MEDICAL MEETING, JUNE 19, 1906.

WHILE this is not a new subject, normal salt solution having been in use for many years, its value has become widely recognized and it is being more and more used every day. Its value should not be underestimated in either surgery or medicine. How could the sugeon do without it? It is practically out of the question, for many hundreds of lives are saved every year that unquestionably would be lost if it were not for the use of salt solution.

The administration of normal salt solution supplies fluid to the body exhausted from loss of fluid through excessive purging, as in cholera or in case of hemorrhage. It may be used to wash from the body various impurities circulating in the blood and lymph channels and to flush out the kidneys. In other instances, it may

be used to supply the body with fluid when liquids cannot be swallowed or retained.

As is well known, a quantity of liquid equal to four times the normal amount of blood may be passed directly into the veins without producing a rise of blood pressure, and experiments have shown that usually within 15 minutes after the fluid flows into the subcutaneous tissue an increased flow from the kidneys takes place.

It is not safe to infuse into the intercellular spaces a greater quantity of liquid than one drachm to each pound of body weight in each 15 minutes, for if this amount is exceeded the tissues become thoroughly saturated, drowned so to speak, kidneys and skin being unable to excrete the liquid fast enough. (Hare.)

There is no excuse for not using it, since boiled water can be had almost anywhere. One teaspoonful of common table salt added to a pint of water will make about the right proportion, at least near enough for all practical purposes. Of course, where there is plenty of time, it should be made up with distilled water and should be six-tenths of 1 per cent. in strength. If it is not possible to get distilled water, filtered boiled water will answer every purpose, and this is most generally used. One should not hesitate, if the sodium chloride cannot be had, to use plain boiled water in case of extreme emergency.

The temperature should be from 112° to 115° Fahrenheit. If in a hurry, the temperature can be estimated by pouring some of the solution over the hand. It should feel comfortably hot, for some allowance must be made for the loss of heat in passing through the apparatus.

While many contrivances can be used for infusion or transfusion, the most satisfactory is Kelley's infusion apparatus, which is well known, simple and easily sterilized by boiling.

The best method of administering saline solution is by the rectum, and an untrained person can administer the solution in this way: The ordinary rectal tube and the irrigating can are generally used, but a male catheter, enema point or piece of gum tubing inserted well up into the rectum will answer every purpose. The fluid should be allowed to flow in slowly. A pint to a pint and a half, or even two pints, may be considered the proper amount of the solution. It is well to turn the patient on the left side and elevate the hips, causing the fluid to run up into the sigmoid. On the operating table the Trendelenburg position is most favorable, allowing the fluid to run well up in the colon. If the patient is restless and cannot retain an enema, or when an enema cannot be given, the infusion should be resorted to.

It is better to infuse than to transfuse, for the reason that when we infuse, or give solutions by rectum, the fluid is taken up by the lymphatics and has to pass through the lymphatic channels, becom-

ing truly a part of the body fluids, while in transfusion the fluid is thrown directly into the blood and undergoes no physiologic change. Transfusion should be done in preference to infusion only when the pulse is very weak and we want immediate results. Then a vein should be opened and the saline solution allowed to flow in slowly. It is usual to open the median basilic, but on several occasions I have opened the brachial vein, which is larger, and, on that account, more convenient.

I have twice seen ill effects following an infusion. In one a nurse infused a strong salt solution under a child's breast, which resulted in a large slough. In the second instance a small vessel was punctured and a large clot of blood formed in the right subclavicular space, requiring evacuation by an incision.

Bisch warns against subcutaneous use of saline solution from experiences with it in Doderlein's clinic. He says it is quite harmless when injected into a vein or into the peritoneal cavity, but under the skin he thinks it is liable to produce gangrene. This, he claims, occurred in six cases under Doderlein. In one of these cases a fatal termination resulted from secondary infection. I cannot understand this if the right percentage and right temperature of the solution were used, and, most of all, if the solutions were sterile.

Following is the history of a case of typhoid fever in which I found saline infusion very useful:

The young man, aged about 20, had a very severe attack of typhoid. I saw him on the fourth day of his disease. His temperature at that time was 104°, pulse 102. He was in a semiconscious condition and a very unpromising case. During the first 19 days his temperature remained most of the time above 104°, going frequently above 105°, and on one occasion reaching 106°. His temperature after this gradually subsided and reached normal on the twenty-seventh day, but then rose and did not reach normal again until the fifty-fourth day. Tubbing had little or no effect upon the temperature. Ice-water enemas, one pint every two hours, seemed to have little or no effect. His toxic condition was very grave. This patient got 700 cubic centimeters of normal salt solution subcutaneously twice a day. He got 30 infusions in all—two every day for two weeks, and on two of the days when he was most ill an extra one, making 30 infusions in 14 days.

These infusions were given under the pectoral muscles, except four, which were given in the flanks. There was no bad local effect, except a little stiffness and soreness, which lasted for a few days after the infusions were stopped. Before I began the infusions his mouth and tongue were parched and dry. Shortly after the infusions began these conditions were greatly improved. He secreted large quantities of urine and had to be catheterized fre-

quently. I feel confident that the salt solution saved this man's life. I have seen similar good results from the salt solution in cases of pneumonia.

While I will not attempt to enumerate the conditions which loudly call for the normal salt solution, the most important ones are excessive hemorrhages, toxemia arising from various forms of infection, as in septicemis, uremia, the comatose state of diabetes mellitus, in cholera and in threatened eclampsia. It is also very useful in severe burns to overcome shock and toxemia.

The best place to give an infusion is under the mammary gland in women, lifting the gland well up and inserting the needle beneath the lower outer quadrant pointing upward and allowing the solution to flow in slowly through a needle about two millimeters in diameter. The needle should be inserted while the solution is flowing so no air can be introduced.

The loose cellular tissue and the breast quickly begin to distend; even a flatly atrophied organ will reach the size of a puerperal breast. The amount that can be easily put under a breast is about 700 cubic centimeters. It is more satisfactory in the male and in emaciated individuals to lift the pectoral muscles, directing the needle upward and inward so that the fluid will infiltrate the subclavicular and axillary spaces.

The proper temperature of the fluid can be maintained by letting the tube carrying the saline solution lie immersed in a pan of hot water about 115° Fahrenheit. The saline enemas, which are often preferable, are best given in the way adopted by Murphy and the Mayos, that is, by inserting a small rectal tube and allowing a small stream of hot saline solution to flow into the rectum continuously. A large amount of the solution is thus taken up in the course of a day. The flow can be regulated by the elevation of the vessel above the individual, or, better, by a clamp on the tubing, limiting the flow to a very small stream not more than a pint an hour. In surgical cases under anesthesia, it is well to give a pint by rectum before the patient awakens, for if given while awakening from the anesthetic the patient will nearly always expel it.

I have spoken of transfusion, and only recommend that it be used in very exceptional cases. It is a well-known clinical fact that some cases of shock are not much benefited by intravenous infusions of saline solution.

A series of 60 experiments on dogs was undertaken by George W. Crile, which he reported in the *Medical Record* April 19, 1902, to determine the effect of the solution at varying temperatures, the cause of death from excessive infusions, dilution of blood, effect on respiration and other topics. The conclusions he arrived at were that if the blood pressure had been lowered by moderate hemorrhage alone infusion promptly restored it. If it had been

lowered by exhaustion of the vasomotor system by afferent impulses from an injury of the cerebro-spinal or sympathetic nervous system, infusion restored the pressure in inverse proportion to the vasomotor exhaustion, that is to say, it is effectual in shock in inverse proportion to the impairment of the vasomotor mechanism. If the matter be greatly impaired or abolished, infusion has no certain effect, although if the impairment is considerable, but not of extreme degree, it will probably restore the pressure.

Blood pressure is re-established but little, if any, above normal, because of the rapid escape of fluid from the tissue and of the automatic center in the medulla, which, when the pressure rises above normal, slows the heart and lessens vaso-constriction in the area of peripheral resistance. If the peripheral resistance is lost (fatal shock) no amount of fluid can do more than temporarily and partially restore the blood pressure and death is inevitable. If the shock is much increased by regional accumulation of blood, as in operation affecting the splanchnic area, infusion may be effective, because the vasomotor mechanism has not gone into resolution.

Murphy says the above deduction explains why some cases of shock are but little, if at all, benefited by infusions. In almost every case an artificial pulse may be procured even of considerable volume, but without resistance. It will disappear almost as quickly as it came and no amount of infusion will sustain the circulation, for the vasomotor mechanism has gone into resolution, abolishing the peripheral resistance.

HUMAN SEXUALITY. A Medico-Literary Treatise on the Laws, Anomalies and Relations of Sex, with Especial Reference to Contrary Sexual Desire. By J. Richardson Parke, Sc.B., Ph.G., M.D., Late Acting Assistant Surgeon, U. S. A. Philadelphia: Professional Publishing Co. 1906.

Three books on this subject have lately come to our review table. It has been possible to speak well of one—not this one. Weininger's book is good. Nystroin's is bad, and Parke's is worse, being better written. The publishers say it is a scholarly book. Perhaps it is. The author calls the book a medico-literary treatise. It is, from the scientific standpoint, trivial, but it is cleverly written. His cleverness at writing is evidently the author's main reliance in this medico-literary adventure. The flavor of the book is extremely "high"—in spots tainted, and on the whole unfit for the use of man. It begins, as a *casa di podra* book should, with a curtsy to prudery, and ends with an ascription to medicine and religion. The publishers think that the book should be found in every well-ordered library. It certainly should be found. It is worth looking for, and when detected should be destroyed.

PROCEEDINGS

OF THE

MEDICAL AND CHIRURGICAL FACULTY

OF MARYLAND

Editorial and Publishing Committee.

ALEXIUS MCGLANNAN, M.D. J. A. CHATARD, M.D. JOHN RUHRAH, M.D.

Secretaries of the County Societies are earnestly requested to send reports of meetings and all items of personal mention and of local or general interest for publication addressed to Dr. Alexius McGlannan, 847 North Eutaw Street, Baltimore.

The recent semiannual meeting of the Faculty at Annapolis was one of the most enjoyable gatherings in the history of the organization. Some of its special features are worthy of more than passing notice. Through the courtesy of Governor Warfield, meetings were held in the old Senate Chamber of the State House, the room in which the Faculty was organized in 1799. The presence of His Excellency and his cordial words of greeting went a long way toward establishing the feeling of comradeship which pervaded the entire meeting. His delightful address of welcome is given quite fully below. His request for portraits of two of the founders of the Faculty, to be hung in his "memorial room," was a beautiful recognition from our Chief Magistrate of the worth and services of our profession to the State. At the impromptu reception in the Executive Mansion, after the morning session of the first day, the Faculty members and their friends were shown an example of old-fashioned Maryland hospitality. That they enpoyed it goes without saying. Another point of interest is a comparison of attendance at this and the semiannual meeting of 1905. The total registration at Deer Park was 55, of which number 34 were from the counties. At Annapolis there were registered 124 members of the Faculty, 66 of whom came from the counties. The total registration of members, delegates and guests was 195. Many doubtless did not register. The increase in attendance, especially among the members of our county societies, is a source of congratulation. Eighteen of the 23 counties were represented. No better evidence than the attendance at this meeting could be wanted to show that the men who have been working for State organization during the past few years have done their work well, and that the fruits of their labor are to be seen in increasing strength in our county societies. If some of the men who have done such good work in their own counties could extend their efforts into such adjacent counties as have not at present strong organizations, great good would follow. Organization of "District Societies" is well worth considering.

The scientific work of the meeting was excellent. New men read papers, and there was a material addition to the working force of the Faculty.

The Anne Arundel County Society was, in fact, the host of the Faculty. Everything possible was done for the entertainment and comfort of the members. This society and the Committee of Scientific Work and Arrangements merit the cordial thanks of all who attended the meeting. H. W.

COUNTY SOCIETY MEETINGS.

A MEETING of the Allegany County Medical Society was held October 2, 1906, at the Associated Merchants' Hall, Cumberland, Md., at 2 P. M. The program was as follows:

Annual election of officers, 1906-07:
President—Dr. S. A. Boucher, Barton.
Vice-President—Dr. G. L. Broadrup, Cumberland.
Secretary—Dr. W. R. Foard, Cumberland.
Treasurer—Dr. E. B. Claybrook, Cumberland.
Report of delegate to semiannual meeting of the Faculty.
"Personal opinions on the treatment of typhoid with reference to hemorrhage and perforation," Dr. S. A. Boucher.
"Report of case of ruptured kidneys in which three-fifths of entire kidney substance was removed," Dr. A. L. Franklin.
"Malformations of the brain and meninges," Dr. F. P. O'Neil.
Report of meeting of the British Medical Association, Drs. E. L. Jones and E. T. Duke.
The next meeting will be held Tuesday, January 8, 1907.

THE Baltimore County Medical Society met October 18 in the Guild House at Towson and heard a paper read by Dr. F. D. Sanger of Baltimore on "Tonsilar inflammations."

It was decided to hold the November meeting at Catonsville and hereafter to hold meetings in different towns throughout the county.

Dr. James H. Jarrett presided and Dr. R. C. Massenberg was secretary.

A JOINT meeting of the Carroll and Howard County Medical Societies was held October 18 at the Springfield State Hospital near Sykesville. Dr. J. Clement Clarke, superintendent of the hospital, and Dr. C. J. Carey, Dr. J. N. Norris and Dr. Earl Snavely, of the hospital staff, entertained the members of the societies at a dinner from 1 to 2 o'clock and at a light luncheon later in the afternoon.

Dr. James H. Billingslea, president of the Carroll County Medical Society, occupied the chair, and Dr. C. R. Foutz was secretary. Drs. J. M. Slemons and A. D. McConachie read interesting papers.

The following physicians were present: Drs. J. H. Billingslea, J. W. Hering, J. T. Hering, C. R. Foutz, G. H. Brown, Edwin Cronk, A. Cronk, J. M. Slemons, A. D. McConachie, M. D. Norris, D. B. Sprecher, W. S. Stone, J. W. Byrne, S. A. Nichols, J. W. Hebb, C. J. Carey, J. N. Morris, Earl Snavely, S. R. Waters, L. K. Woodward, T. J. Coonan, S. L. Bare, F. H. Siess, L. H. Hendrixson, Philadelphia; F. F. Brooks, George Winterson, C. W. Heffenger and J. Lacey.

THE Harford County Medical Society met in Bel Air on the evening of October 17. There were present: Drs. W. S. Archer, C. Bagley, President; C. A. Hollingsworth, R. S. Page, P. F. Sappington, Secretary; A. F. Van Bibber.

Drs. Hiram Woods and W. S. Gardner, President and Treasurer of the Medical and Chirurgical Faculty, were present as visitors. The paper of the evening was by Dr. Gardner on "The diagnosis of the etiology of uterine hemorrhage." The subject was discussed by Drs. Archer and Van Bibber.

Dr. Page gave the society an interesting and comprehensive review of the lectures recently delivered at the Johns Hopkins Medical School by Sir Almouth Wright of London.

Remarks were made by the President of the Faculty concerning the necessity of having a carefully prepared program for each meeting and the desirability of appointing members of the society to report upon interesting articles in current medical journals.

The society discussed the advisability of having regular monthly meetings. They decided to have the next meeting in November, the date and program to be announced by the Secretary.

MINUTES OF SEMIANNUAL MEETING.

THE semiannual meeting of the Medical and Chirurgical Faculty was called to order by the President, Dr. Hiram Woods, in the old Senate Chamber of the State House, Annapolis, Md., Thursday, September 27, 1906, at 11.30 A. M.

ADDRESS OF WELCOME. HON. EDWIN WARFIELD.

Governor Warfield said:

Ladies and Doctors—I am pleased to welcome you to Annapolis. This is a distinguished gathering. You are members of an ancient and honorable society. I can hardly realize that your organization is so old, but I am glad to note that its members are quite young. I do not see any old men in this room. You show very good taste in bringing your wives and sweethearts with you, and you are the more welcome because you have done so.

I have been reading Dr. Cordell's book, "The Medical Annals of Maryland." It is full of interest, not only to the members of your profession, but to everyone who feels a pride in the record of his State. The making of such a valuable history was a great work, and the author deserves the thanks and support of all members of his profession.

Dr. Cordell has done a splendid service in resurrecting the history of the medical profession in this State. Every physician in Maryland should have a copy of his book.

Your Medical and Chirurgical Faculty was chartered by an Act of the Legislature of Maryland in 1799, under the administration of Governor Ogle, and was finally organized in Annapolis City, January 3, 1799 (and, I believe, in this historic Senate Chamber), by the election of Dr. Upton Scott of Annapolis as president; Dr. Ashton Alexander of Baltimore, secretary, and Dr. Thomas Scharff, treasurer.

The incorporators, 101 in number, embraced the most distinguished physicians of that period, men who were renowned not only as medical practitioners, but as patriots who rendered great service to the cause of independence. Many of them were heroes of the Revolution.

Every one of the 19 counties of the State was represented in the list of incorporators by two or more eminent practitioners of medicine. The names of the incorporators are still among those belonging to our most influential families. The descendants of these men are still found among the practicing physicians of Maryland.

These old fathers of your profession were far-seeing men, and it is for you to uphold the standard they set over 100 years ago. Maryland was among the first States to establish a medical college, thus evidencing the enterprise of your founders.

Last night I sent over to the State Library and got a copy of your charter, and I read it with much interest. I am not going to take up your time by reading it to you, but I was struck with this preamble, which I will read: "Whereas, it appears to the General Assembly of Maryland that the establishment and incorporation of a Medical and Chirurgical Faculty or Society of Physicians and Surgeons in the said State will be attended with the most beneficial and salutary consequences by promoting and disseminating medical and chirurgical knowledge throughout the State, and may

in future prevent the citizens thereof from risking their lives in the hands of ignorant practitioners or pretenders to the healing art." The point I wish to emphasize is, that it sets forth a definite purpose of existence. There was a reason for creating this Faculty, and that reason was the elevation of the medical profession and the protection of the public.

That act provides for an examining board appointed by your Faculty, and that its members should be taken from the eastern and western shores. The eastern shore always wants to be on even terms or ahead of our side of the Chesapeake. Upon this act of 1799 was based all subsequent medical legislation, and the system inaugurated by that act, requiring practitioners to be examined by a committee named by this Faculty, was on the statute-books up to 1892, when the present law went into effect. Today the act of 1892 provides that there shall be two boards: one board of eight, named by your society, and another board of eight, named by the Homeopathic Society of Maryland.

In this connection I wish to call your attention to the fact that there is no record in the Executive Office of the boards selected by these two societies. The law requires that the names of members of these boards shall be filed in my office. I have directed that your secretary be asked to furnish a list of the examiners. You know the Governor is required to see that the laws are executed.

Your charter provides that on the first Tuesday in June of each succeeding two years you should hold your meetings at Annapolis. If this requirement has not been repealed, I am going to insist that it shall be observed. It will fill you with feelings of patriotic inspiration to know that the fathers of your society sat in this same room and discussed ways and means for promoting the welfare of your profession, which meant the welfare of the people in our State.

I want you to record your names on this Senate Register. I have myself written a heading descriptive of the occasion, and I wish every member of the Faculty attending this meeting to sign his name in this book. This meeting becomes a part of our State House history.

This is the oldest capitol now occupied by the executive officers of a State, and for 120-odd years the Governors of Maryland have been administering the affairs of our State in this venerable and historic building. The new part of the State House has been built to conform with the old plans, so that its colonial appearance has not been marred.

In conclusion, I want to say that we have a memorial-room here to my right. I have reserved a space on one of the walls where I would like to place a portrait of a prominent medical man of our State. There have been some distinguished patriots in your profession, physicians of the Revolutionary period, who rendered signal services in the cause of independence, and I would like you to select one of them and present his portrait to me to hang there, so that visitors to this Capitol may be reminded of what your profession has done for Maryland.

The Governor, after extending an invitation to the ladies and visitors present to visit the Executive Mansion, gave another warm welcome to the Society, and was enthusiastically applauded.

RESPONSE. DR. HIRAM WOODS.

Your Excellency and Fellow-Members of the Faculty—In replying to the kind words of greeting which the Governor of our State has given us, it seems to me not inappropriate to speak briefly of matters of interest to you, Sir, as our Chief Magistrate and to the members of the Faculty as practicing physicians. And first, let me say, Governor Warfield, that the interest you have shown in the affairs of the medical profession, your readiness to co-operate in promoting the physical welfare of our people, your occasional attendance at our gatherings, your kindness and courtesy to the Faculty in placing this historic hall at its disposal, and your presence to welcome us are deeply appreciated. Your request gives us another proof of your regard for the medical profession. To place in our State House, next to the room in which this Faculty was organized 107 years ago, a portrait of one of our founders, is a beautiful tribute from our Governor to the worth of men who set a high standard of professional integrity. The Faculty will heed your request and select promptly one whose memory you may thus appropriately honor.

Of late years physicians have not been backward in making known their opinions concerning matters affecting public health. Some of their endeavors have taken practical shape really during your administration. They affect the State and Baltimore City. Primarily, of course, these undertakings have sprung from increased knowledge in the profession itself; knowledge of the facts that time and effort have been wasted in individual work where co-operation was needed; that, essential as individual faithfulness to duty and conscientious preparation for one's life work are, organization in the profession and greater activity in matters affecting public weal are demanded if results are to be worth attaining. But mere professional effort cannot accomplish much without necessary legislation. Moreover, an Executive is needed who will put the laws into effect and lend support to those whose duty and privilege it is first to show what should be done, and then to do it. It is, Sir, in this light that the medical profession of Maryland, if I mistake not, regards our present Governor; and it is because of such interest and such examples as yours among public men that the medical profession has confident hopes of great things in the future. Even during the brief time yet remaining to your administration two long-needed reforms will be well on their way in Baltimore—the sewerage system and Infectious Hospital. Their good is simply incalculable. The problems of securing pure milk supply and good water for our cities are pressing and difficult of solution. They have their medical sides, and physicians are giving their best efforts to discover and make clear what is needed. But with this known, as, in great part, it is, proper enforcement of present laws, enactment of others to meet existing conditions, skillful and difficult tasks in engineering—these are some of the things needed if the lessons the physician learns in the sickroom or laboratory are to be turned to practical use.

Co-operation of physician, scientific engineer, executive and legislative branches of the State and city governments are essential to promotion and maintenance of public health; and such co-operation exists today in our State as never before. It may be of interest to you, Sir, to learn of the

good work organized by the Tuberculosis Commission and executed by the State Board of Health. Our State Board of Health keeps pretty close track of tubercular infection in the State. Through this Board any physician with tuberculosis in his practice can obtain all needed mechanical appliances and detailed instruction for his patients concerning control of infection. I am informed by Dr. Fulton, the able Secretary of the Board, that between 2400 and 2500 consumptives were reached in their homes during the first year's work under the law for restriction of tuberculosis. The number of persons thus protected from infection is hard to estimate. Twelve to fifteen thousand is a moderate estimate. The cost has been well under $5000. Dr. Fulton tells me there is no sign of "officialism" in these matters. All is done through the physician in attendance. The agent of the Board need not be seen.

Sanitary regulations, however, are not what might be desired in all parts of our State. If a physician has the responsibility of looking after the health of a locality, he should at least possess the power to enforce health regulations. In some of our communities he does. In others he is almost or entirely powerless to put the machinery into motion. Red tape, usually in the shape of County Commissioners, keeps him pretty securely tangled. The State Board of Health, too, has enormous responsibilities. There is no branch of public medicine, if I may use the term, which does not come at one time or another under its jurisdiction. To maintain proper and instructive health statistics, to locate sources of infection throughout the State, to keep track of threatening dangers from beyound our own borders—all this is routine work of the highest importance and requires a numerous and competent staff. But there are constantly coming to the Board what may be termed "emergency" calls, admitting of no delay and putting aside routine work. I am convinced that our secretary should have at his disposal more men, more money and greater latitude. It is poor economy to save at this portal of our hygienic government.

Did time permit, I should like to speak of other matters of importance. I can allude only in passing to the proprietary-medicine evil. Largely through lack of organization and failure of support where we had, as we thought, right to expect it, the effort to regulate this evil at the last legislative session was ineffectual. But the position of the profession on this matter is, if anything, more definite than ever. Hardly a week passes without one or more journals reporting death or serious illness from these medicines. Education of the public by the profession seems to me the most powerful weapon at present in our hands. The amount of unnecessary suffering caused by the so-called "headache cures" is enormous. Nervous wrecks of greater or less degree are seen on every side. The habit is learned in homes, taught in boarding-school infirmaries and fostered at soda-water fountains. Why? Simply because the remedy is, to use the words of one proprietor, a "ready relief." When the victim, driven gradually to larger and larger doses, finally without the relief first obtained, seeks to know the cause, the problem of cure is infinitely greater than it would have been at an earlier date. This matter, fellow-members of the Faculty, demands our active, unremitting and serious attention, not for our sakes, but for the sake of those whose worth as members of the community is being undermined. Even without legislation we can do a great deal.

I want to say a word about a matter concerning which men present can speak more authoritatively than I. I allude to typhoid infection of city people sojourning during the summer in our counties. They do not carry the infection from home. This is easily proved. A family experience a few years ago first called my attention to it, and I have tried to learn something from our State Board of Health. Dr. Fulton tells me that the statistics of our State show that the danger of infection to city people in the counties is six or seven times greater than the same risk of county people in cities; that actual mortality from this disease, whose very existence is looked upon as meaning somebody's neglect, if nothing worse, is in Maryland two and a half times greater in proportion to population among the county than city people. Yet if one studies the problem of hunting down the focus of infection and removing it, the difficulties in large cities are vastly greater and more complex than in the country. This is not the time, nor am I the individual, to follow up the lessons which these startling figures point out; but they are startling, and the recurrence year after year of typhoid among city people visiting, for health and rest, isolated places in our counties, where pure water and fresh milk stand pre-eminent among the fascinating attractions, shows there is something radically wrong and that the wrong is widespread. It shows, too, that there is right at hand a great educational work for our county societies to take up.

Let me conclude, gentlemen of the Faculty, by wishing that this semiannual meeting may be a source of profit and pleasure to our members, and in suggesting, as I know each one of you would like to do, that we give Governor Warfield a rising vote of thanks for his hospitality.

Address.—Dr. H. B. Gantt, President Anne Arundel County Society.

Some facts the physician should know in reference to vaccine and vaccination.—Dr. W. F. Elgin, Glenolden, Pa., delegate from Medical Society of the State of Pennsylvania.

It was moved by Dr. Taneyhill that all visiting physicians be invited to participate in discussions. Seconded and carried.

Discussion of Dr. Elgin's paper.—Dr. W. R. Stokes.

Medical organization.—Dr. W. H. Pearce.

During the afternoon, through the courtesy of Rear-Admiral Sands, the members were allowed to inspect the Naval Academy grounds.

The evening session was held in the Casino at Boucher's on the Spa, and was called to order by the president, Dr. Woods. The orator of the evening was Dr. P. S. Rossiter, Passed Assistant Surgeon, U. S. Navy, who read a very interesting paper, entitled "Some Features of Leprosy." (*This paper will appear in the next issue of this Journal.*)

There was dancing in the Casino, and an oyster roast was tendered by the Anne Arundel County Medical Society, which was one of the most enjoyable features of the entire meeting.

The Friday morning session, September 28, 1906, was called to order in the old Senate Chamber of the State House by the president, Dr. Woods, and the following program was carried out:

Review in surgery.—Dr. Alexius McGlannan.

Dr. Ellis submitted the following resolution:

WHEREAS, His Excellency the Governor of Maryland has generously offered to accept and hang on the walls of the historic Capitol of the State

the portrait of a founder of the Medical and Chirurgical Faculty of Maryland:

Resolved, That the Faculty cordially accept this patriotic tender of the Governor, and requests the president to appoint a committee of five, who shall select from the list of founders five or more names to be submitted to the Annual Meeting of 1907, from which the Faculty shall by vote, or otherwise as it may deem best, select a physician, whose portrait shall be presented to the Governor for purpose stated in the preamble.

This resolution was adopted.

Dr. Birnie moved that the amount be collected now by personal subscription to defray the expenses of buying the portrait.

Dr. Blake offered as an amendment that the House of Delegates be requested to appropriate $200, or as much as necessary, to carry out the purpose of the resolution. The amendment was accepted by Dr. Birnie and the motion carried.

Review in medicine.—Dr. L. V. Hamman.

Discussion by Dr. T. B. Futcher.

A rapidly fatal case of Landry's paralysis, with subsequent study of this disease.—Dr. C. W. R. Crum.

Discussion by Dr. A. P. Herring.

A telegram from Dr. Harry Friedenwald was read, stating that he was unable to be present, and consequently his paper on "Indications for paracentesis of the drum head" could not be presented.

The passage of nails, glass and other foreign bodies through the alimentary tract. (Exhibition of specimens.)—Dr. Owensby.

Discussion by Dr. Stabler.

The Chair appointed a committee relative to the resolution of Dr. Ellis. Those appointed were Drs. C. M. Ellis, E. F. Cordell, W. H. Welch, H. Harlan, R. W. Johnson.

Before adjourning, the Faculty passed a unanimous vote of thanks to Hon. Edwin Warfield, Hon. Charles J. Bonaparte, Secretary of the Navy, and Rear-Admiral James H. Sands, U. S. N., Superintendent of the Naval Academy, for the courtesies extended to the members of the Faculty and friends during their stay at Annapolis.

The meeting adjourned.

In the afternoon the Faculty was given a trip down the bay on the "Standish," the use of which was obtained through the courtesy of Hon. C. J. Bonaparte, the Secretary of the United States Navy. A portion of the Naval Academy Band furnished music on the trip.

The fifteenth meeting of the House of Delegates was called to order by the president, Dr. Woods, at Carvel Hall, Annapolis, Md., September 28, 1906, at 9.40 P. M.

There were present Drs. G. L. Broadrup, G. H. Hocking, T. M. Chaney, C. Birnie, H. Bratton, F. B. Smith, J. E. Legge, S. J. Fort, W. F. Hines, Paul Jones, W. S. Gardner, G. M. Linthicum, R. W. Johnson, Guy Steele, T. H. Brayshaw, W. P. Miller, T. A. Ashby, Hiram Woods, C. M. Ellis and the acting secretary, W. E. Magruder.

The minutes of the House of Delegates and Council were read and approved.

Dr. Birnie moved that the meeting adjourn. Seconded and carried.

AN ANALYTICAL STUDY OF ACUTE LOBAR PNEUMONIA IN THE JOHNS HOPKINS HOSPITAL FROM MAY 15, 1889, TO MAY 15, 1905.

By J. A. Chatard, M.D.,
Assistant in Medicine, Johns Hopkins University.

(*Continued from Page* 405 *in October Number.*)

Leucocytes.—The leucocyte count, which was made in 583 patients, gave some interesting figures. (See Chart 3.) Here we note (dotted line) the high mortality is the low leucocytoses, which mortality steadily decreases and stays at a minimum when the leucocytes range between 20,000 to 30,000. The mortality is fairly constant when the leucocytes are between 30,000 to 60,000, with a marked increase in mortality in the higher leucocytoses.

Urine.—Albumen was present in 511 patients, or 77.6 per cent.; no albumen in 111 patients, or 16.8 per cent. Casts were present in 166 patients, or 25.2 per cent. Bile was found in the urine of 45 patients out of 131 examinations for it, or 34.3 per cent. The chlorides were estimated in 103 patients, and in over 50 per cent. they were below 1 gram per liter.

Complications.—Pleurisy. As is usual in pneumonia, pleurisy was very frequent, occurring in 338 patients, about 51.2 per cent. These figures are undoubtedly low, as often a rub is not heard or has partly cleared up. Pleurisy with effusion occurred in 11 patients, with about 36.3 per cent. mortality.

Empyema occurred as follows: Right side 14 times, left side 13 times; total of 27, with a mortality of 22.2 per cent. Twenty-two of the cases were operated on, with 20 recoveries and 2 deaths.

Pericarditis was present in 35 patients, with 29 deaths, or 82.8 per cent. mortality.

Endocarditis in 13 patients, with 10 deaths, or 76.9 per cent. mortality.

Meningitis was very serious, all of the 13 patients dying.

Jaundice was present in 76 patients (11.5 per cent.), with 21 deaths, a mortality of 27.6 per cent.

This complication varied somewhat during the different years; thus in 1900 it occurred 20 times; 1902, 13 times; 1903, 9 times, and in 1900, though the year with the greatest number of pneumonia patients, jaundice was only present 6 times.

Otitis media was present in eight patients on one side, and once on both sides; all recovered.

Parotitis was present in four patients; all recovered.

Conjunctivitis occurred four times, once in a fatal case.

Thrombosis occurred three times—twice in the right popliteal

vein and once in the right internal saphenous vein. One case was fatal.

Arthritis occurred three times; two fatal.

Peritonitis three times; all fatal.

Abscess of the lung three times; all fatal.

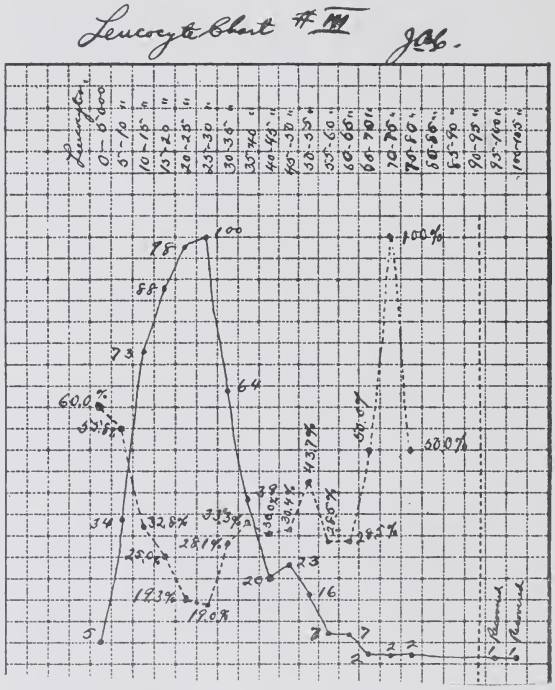
Tonsilitis three times; all recovered.

Pneumothorax twice; one fatal.

Gangrene of the lung twice; one fatal.

Multiple abscess of the lung twice; both fatal.

The following once each: Impairment of speech (recovered), acute nephritis (died), subtrapezious abscess (recovered), kera-



Solid line represents number of patients with number of leucocytes.
Dotted line represents mortality pecentage for number of leucocytes.

titis (died), mastitis (died). There were eight patients with pneumococcus septicemia; all fatal.

Delirium.—Delirium occurred in 149 patients, or 22.4 per cent. Of these, 67 died, or 47.9 per cent. mortality. Twelve patients were admitted in active delirium, and of these 7 died, or 58.3 per cent. mortality.

Herpes.—Herpes was present in 180 patients, or 45.8 per cent. of the total number in which either a note of its presence or absence was made. Herpes was present on the lips of 87 patients, or 48.3 per cent.; on the nose in 43 patients, or 23.3 per cent.; on the ears in 3 patients, or 1.6 per cent.; it was present on the left cheek in 2

patients, and once each on right buttock and loin, submental, left chin, and right chin. Herpes was present, but the site not noted, in 41 patients.

Special Features.—Among some of the special features were the following: Delayed resolution 35 times, or 5.3 per cent.; pleuropericardial rub 14 times, or 2.1 per cent.; traumatic pneumonia 5 times, or 0.7 per cent; unresolved pneumonia 4 times, or 0.6 per cent.; central pneumonia twice, or 0.3 per cent.; relapse occurred 5 times, or 0.7 per cent.

There were four or five patients admitted to the surgical side at the onset of the pneumonia for severe abdominal pain.

Aside from delirium, five patients showed mental features, one of which had post-pneumonic psychoses.

There was one marked post-critical collapse and one patient with a marked pre-critical rise in temperature.

Blood Pressure.—The blood pressure varied between 125 to 150 mm. Hg. in most of the 118 patients in which the blood pressure was estimated.

Defervescence.—For the sake of clearness and comparison we have divided the crisis into "true" when the temperature falls to normal or below in less than 12 hours, and "protracted" when the temperature falls to normal in from 12 to 24 hours. A drop of less than 3° F. has not been considered a crisis. Any drop in temperature exceeding 24 hours has been considered as a lysis.

True crisis occurred 99 times, or 21.6 per cent.; protracted crisis occurred 71 times, or 15.5 per cent.; total, 170 times, or 37.1 per cent. Lysis occurred in 288 patients, or 62.8 per cent.

Pseudo-Crisis.—Pseudo-crisis was noted when the temperature fell to about 100° F., and returned to its average height in 12 hours or less. There were 17 such instances, or about 2.5 per cent.

The association of a fall in the number of leucocytes and the temperature gave some interesting figures; thus there were 7 patients in which the leucocytes fell 5000 during the crisis, 25 in which they fell 10,000, 16 in which the drop was 15,000, and 8 in which the drop was 20,000. All of these were true crises. In the protracted crises 9 times the fall was 5000, 19 times it was 10,000, 9 times also 15,000, and 5 times the leucocytes fell 20,000.

As regards the day of the crisis, the seventh and the ninth days were the most frequent, and on the different odd days (1, 3, 5, 7, 9, etc.) 100 of the 170 crises occurred.

Treatment.—This was limited to a few general procedures; thus *stimulants* (strychnia, digitaline, alcohol, etc.) were used in 536 patients, or 81.4 per cent.; *symptomatic* (under which head were included morphia, codeia, inhalations, and various other drugs) in 460 patients, or 69.9 per cent. The rest of the treatment consisted of the different forms of hydrotherapy, oxygen, infusions, salt solution, poultices, antipneumococcus serum, venesection, and in a certain number of cases merely rest in bed. Of these procedures little, if anything, may be said, as all are and have been used by various persons and in various places, and their merits greatly dis-

cussed. Venesection was practically only used as a symptomatic measure in relieving cyanosis, or engorgement. Antipneumococcus serum gave little, if any, good results, in most cases causing a slight fall in temperature, but the pulse was quickened and the general condition of the patient made worse. The general results of all forms of treatment during the many years seem to change very little the average mortality. This mortality has remained very much at the same level, the yearly variations agreeing in most instances with the general increased mortality of pneumonia for that year or place.

This article is an abstract of a more general one on the statistics of pneumonia, which will appear later with a series of collected articles entitled "Studies in Pneumonia."—J. A. C.

In the discussion Dr. Scott spoke of the value of venesection in certain cases of pneumonia, and asked for the results of such treatment in the above statistics.

Dr. Chatard said that in the few cases where venesection had been used it was entirely for the alleviation of such symptoms as serious engorgement and cyanosis. In these it did seem of benefit as far as immediate symptoms were concerned.

PROLAPSED OVARIES.

By William S. Gardner, M.D.

READ BEFORE THE ANNUAL MEETING OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, WEDNESDAY MORNING, APRIL 25, 1906.

"Doctor, do you see many cases of prolapsed ovaries?"

"Lots of them."

"What do you do for them?"

"God knows."

This was the beginning of a conversation that I had recently with a well-known gynecologist of this city, and illustrates only too clearly the attitude of many of the profession toward this condition.

In the development of gynecology, the removal of large fibromyomata, the wide dissection to remove carcinoma and the wandering away after things in the upper abdomen has consumed so much time and work that the small but discomfort-producing prolapsed ovary has been overlooked. And its neglect has left many patients in needless pain and brought discredit upon the attending surgeons.

A brief outline of the history of one case can be used as an illustration of quite a large class.

(574) E. W., aged 16 years, was admitted to the City Hospital early in October, 1905. She was first in the care of the internal medicine department, where a careful history and complete physical examination revealed no pathological lesion. She

was transferred to the gynecological side October 17. She had never been pregnant. She began to menstruate at 13 years of age, and the periods have recurred regularly, with a duration of from three to five days, and always painful. The pain precedes the flow about one week and continues for one week after the flow. The pain is in both sides of the pelvis and in the back, and there is severe occipital headache.

Since June the attacks of pain have come on independent of the flow every two weeks. During some of these attacks of pain she has violent hysterical convulsions lasting from 10 to 20 minutes, and which leave her very weak. The convulsions are always preceded by the pain, so that she is able to know when they are coming on.

A bimanual examination under anesthesia was made and a retroverted uterus with both ovaries in the cul-de-sac were found. The patient was quite anemic, but no other gross lesion than the one mentioned was detected.

The abdomen was opened, the ovarian ligaments shortened, bringing the ovaries up close to the posterior side of the uterus just behind the region of the Fallopian tube on either side and a Gilliam's suspension was done.

The post-operative history is uneventful. She called upon me August, 1906, and states that she is getting along well and has had no return of the nervous attacks, and is free from pain.

Causes.—A very large proportion of prolapsed ovaries occur in association with retrodisplacements of the uterus, and when we take into consideration the frequency of retrodisplacements and the fact that about 25 per cent. of all of them are congenital, one of the most prolific causes of prolapsed ovaries is accounted for. Another condition found is that nearly all prolapsed ovaries are enlarged. We are compelled to consider whether the enlargement is a cause or a result of the prolapse. There is no doubt that in part of the cases the enlargement comes first and is the direct cause of the prolapse, the suspensory ligament becoming elongated by the constant dragging.

On the other hand, the enlargement is so constant that there must be some direct relation between the increase in size and the increased congestion resulting from the displacement. The enlargement in some cases is an actual increase in ovarian tissue; in many the enlargement is due to a septic condition.

The direct cause of the prolapses in the cases of those associated with retrodisplacements, and more particularly in those in which the uterus retains a normal position, is the elongation of the ovarian ligament, which should hold the ovary fairly close to the fundus of the uterus.

Symptoms.—These patients present a series of symptoms which occur with a sufficient degree of regularity and frequency to present a fairly clean-cut clinical picture.

Pain in the pelvis is one of the most constant complaints. Very commonly it is located in both ovarian regions, and in some in-

stances in one side only. At times it radiates down one or both legs and is invariably increased by the patient being on her feet. This pain is sometimes so severe that the patient cannot be in the erect position except for short periods, and then with great discomfort.

Pain in the region of the sacrum which seems to extend upwards and is associated with a severe occipital headache is very common. The pain in the back is constant while the occipital headache is paroxysmal, and is usually exaggerated at the menstrual periods.

A very characteristic symptom of prolapsed ovaries which I have not observed with any other pelvic lesion is a severe paroxysmal intermenstrual pain in the pelvis. This pain comes on from two to fourteen days before or after the periods, varying in different cases but usually very constant in its relation in time to the period for each case.

The dysmenorrhea from which these patients suffer is usually severe. In nullipara it frequently dates from the beginning of menstruation. In those who have borne children the pain usually dates from some time subsequent to the last labor, and usually from a date corresponding with the beginning of the pelvic pain and pain in the back. The pain as a rule begins before the flow, continues through the period and for a day or more after the flow has ceased.

The nervous symptoms from which many of these patients suffer are of such a character that the patients are not infrequently classed as hysterical or neurasthenic. This is not correct, but the tendency of many of these patients is to be easily excited; to cry without provocation; to laugh immoderately; to be easily irritated; and to be in a generally unstable mental condition is very common. Occasionally one will go so far as to have convulsions, which are classed as hysterical convulsions. The convulsions have a tendency to recur at the menstrual period.

One patient complained of nausea whenever she was on her feet for a short time. Painful coition is one of the best-known symptoms produced by prolapsed ovaries, and needs very little comment. It is of value, however, in only a limited number of cases.

Painful defecation is also a common symptom. In some cases the pain comes on during the act of defecation, and in some the pain comes just after the bowel is emptied and continues for some minutes.

It will be noted that many of these symptoms correspond very closely to those usually ascribed to retrodisplacements of the uterus. While at this time I do not feel justified in stating it dogmatically, I am reasonably satisfied that many patients with retrodisplacements are suffering more from the associated prolapsed ovaries than from the uterine lesion.

Diagnosis.—The diagnosis is usually made without difficulty. The prolapsed ovary can be felt quite easily in the cul-de-sac directly behind the uterus or can be caught between the fingers in the vagina and the pelvic wall. It can be recognized by its tender-

ness on slight pressure, by its shape and by its tendency to slip away from the point of pressure.

Treatment.—Before the operative era the treatment of prolapsed ovaries was the use of vaginal tampons and pessories. The practically unanimous opinion was that very little at best and usually nothing was accomplished. Afterwards came the time of the removal of good, bad and indifferent ovaries. The prolapsed ovary gave rise to much discomfort, and without reference to its being diseased or not, it was removed along with the others.

Conservative surgery, which I understand to mean the removal of only hopelessly diseased organs and the preservation of everything consistent with the restoration of the patient to health, makes the removal of prolapsed ovaries look like the bad surgery which it is.

Quite a number of the more recent text-books recommend the suspension of a prolapsed ovary by shortening the infundibulopelvic ligament, or by stitching the ovary to the peritoneum at the brim of the pelvis. But apparently very little attention has been paid to the subject. The only recent article in English that I have been able to find is one by Barraus in the Medical Record, N. Y., 1904, vol. lxvi. He reports 12 cases in which he successfully treated the condition by making an opening in the broad ligament, bringing the prolapsed ovary through and fastening it on the anterior surface of the ligament.

The operation that I have been doing for more than a year now is, I believe, simpler and more correct from an anatomical point than either of the above operations. It consists of shortening the elongated ovarian ligament by a couple of fine silk stitches. The first one takes a light but firm hold in the uterus near the lower border of the ovarian ligament; it is then continued through a portion of the ligament and inserted firmly into the ligament near the ovary. The second stitch is placed in the same way but near the upper border of the ligament. When these stitches are tied the ovary is brought close up to the uterus, but still retains a limited mobility independent of the uterus, and a complete mobility with the uterus.

As many prolapsed ovaries are associated with retrodisplacements, after the ovaries are fixed to arteries the operator can proceed to do the operation of choice for the correction of the displacement. I feel quite sure that the failure to properly suspend the ovaries is frequently the cause of the failure to relieve the symptoms when suspension of the uterus to correct retrodisplacements is done.

The sixth paper was read by Dr. L. K. Hirshberg on "A New Fever-Producing Organism." For paper, see *American Journal of the Medical Sciences.*

MORBIFIC AND INFECTIOUS MILK.

By George M. Kober, M.D.,

Washington, D. C.

In view of the dietetic importance of milk for all classes, but especially for infants, invalids, and the sick and convalescents, it is perfectly natural that much study should have been given to this foodstuff, and that of late years the sanitarian and the bacteriologist should have found it a profitable field for research. Indeed, the production of pure milk might well be considered one of the most important problems which confronts us, and your State Board of Health deserves special commendation for the present campaign of public education in the study of the milk question. Few countries until recently have deemed it necessary to do more than prevent adulteration of the milk, and some of the legislators appear to think that as long as the milk has not been skimmed or watered, and contains the standard of total solids and fats, we need not worry about the germs we eat or drink. This may be a pleasing reflection to persons who do not know that such hydra-headed diseases as scarlet fever, diphtheria, and cholera infantum have been disseminated in the milk supply, that typhoid-fever epidemics have been thus caused, and that milk may be the vehicle of the germs of tuberculosis and other infectious diseases and morbific agents. Time will not permit me to do more than briefly point out some of the circumstances under which milk may be the cause of disease.

1. *Milk Which Is Objectionable by Reason of Color, Odor, Taste, and Consistency*—(a) *Abnormally-Colored Milk.*—Fuchs was the first to point out that blue milk may be due to the presence of chromogenic micro-organisms, and Hueppe proved that they may even invade the udder of the cow. Mosler and Uffelmann refer to cases of gastro-intestinal catarrh produced by the consumption of such milk. A uniform blue color is imparted by adulteration with water and certain kinds of cow's feed, and by some drugs. *Yellow milk* may be due to the addition of coloring matter, such as annato or saffron or the development of the bacillus synxanthus (Schrotter), but may also be caused by the ingestion of rhubarb (Mosler). *Red milk* may be caused by rhubarb, or by the presence of the bacillus prodigiosus, or of the spirillum rubrum, or by the admixture of blood, especially when the milk looks streaky, but it is most often due to giving the animals madder or bedstraw for food. *Brown milk* may be due to the presence of foreign matter or the products of certain fungi. A *bluish-red*

color is caused by the bacterium lactis erythrogenes (Hueppe), while *green milk* is generally the result of an excess of fat and incomplete emulsification, sometimes due to the presence of the bacillus fluoresens, and occasionally, as in suppurative affections of the udder, to the presence of green pus.

(b) *Abnormal Odor, Taste, and Consistency.*—This may be caused by the character of the food, by exposure of the milk to air charged with foul vapors, or by the presence of foreign matter. The odor of onions is imparted when any of the alia are eaten, and after the ingestion of even a small quantity of skunk cabbage the milk yields the characteristic odor. The consumption of turnips, cabbage, or decaying leaves frequently affects the flavor of the milk. Milk is said to acquire a bitter taste after the ingestion of wormwood or when the animal suffers from disease of the liver, interfering with the proper elimination of the biliary acids and salts, but it is most frequently due to the presence of certain forms of bacteria generally present in dark, damp, and badly-ventilated milkhouses. A salty milk often results from the cattle grazing upon marshy salt grasses.

Occasionally we see a stringy or filamentous milk, which is due to the presence of certain micrococci, very generally found in dirty milk pans or other utensils. Sometimes the milk is slimy, and several species of bacteria have been described as the cause of this condition. Chief of these organisms is the bacillus viscosus, isolated by Adametz. In rare instances milk presents a soapy taste, which, according to Weigmann, is due to a specific bacillus. It is needless to add that all such milk is unfit for use.

(c) *Colostral milk* and the milk yielded for from 10 to 15 days before calving differ in composition from normal milk. Dr. Heisch reports the case of a family using colostral milk who were attacked with symptoms resembling severe influenza, with high fever and a great soreness of the inside of the mouth, throat, and tongue, which were covered with small pustules. The servants, who took the skimmed milk only, remained unaffected. According to Hohne milk yielded by animals a few days before calving has induced diarrhea and colic in the consumers. For these reasons it has been deemed best to exclude from sale the milk yielded by animals 15 days before and five days after parturition.

(d) *Milk Sediments.*—Every consumer of milk has doubtless observed the presence of more or less foreign matter at the bottom of the vessel or bottle in which it is kept; indeed, it is a matter of such common occurrence that it hardly excites attention, and many are disposed to look upon it as a matter of course. Professor Soxhlet of Munich was perhaps the first to point out that these deposits are largely made up of excrementitious matter from the

cow, which, adhering to the udder of the animal, gained access to the bucket during the act of milking.

If these sediments are subjected to microscopical examination, we shall find that they are composed of epithelial debris, hairs of the cow, excrementitious matter, vegetable fibers, organic and inorganic dust particles, bacteria, fungi, and spores of every description. Fully 90 per cent. of the germs are intestinal bacteria, all of which is not only disgusting, but extremely suggestive of danger. The number of micro-organisms in such milk is largely increased, and while there is no evidence that milk of this description, when taken perfectly fresh, has proved injurious to the consumer, we know that bacterial development and consequent decomposition are materially hastened in such a medium, and that the conversion of lactic sugar into lactic acid, apart from impairing the nutritive value, may cause gastro-intestinal disorders in delicate infants.

Dr. Plaut found, as a rule, that in warm weather the so-called fresh milk delivered in the morning has already passed the period of safety and is unfit for use by young children on account of undue germ development, and sees in this the most frequent cause of cholera infantum and the summer diarrhea in bottle-fed children. Bitter, an authority on sanitary milk, claims that the maximum limit for milk that is fit for food is 50,000 germs per cubic centimeter. In my own city only 52 of the 117 samples of market milk examined bacteriologically contained less than 50,000 germs per cubic centimeter.

The greatest danger from milk of this class is the possible presence of tyrotoxicon and toxins. Professor Vaughan believes that the former poison is developed by the growth of a saprophytic germ, which under favorable conditions multiplies with astonishing rapidity. The presence of the very filth referred to, a summer heat, and the pernicious habit of placing the milk before cooling in covered cans or bottles, perhaps dirty besides, constitute favorable environments for the development of this poison. Flügge (*Zeitschrift f. Hygiene*, July, 1894) found among the milk bacteria, especially those which are liable to resist the temperature of boiling, several varieties capable of evolving toxins. The views of Vaughan, Booker, Jeffries, Escherich, Baginsky, and others on the relation of saprophytic germs and toxins to cholera infantum and the summer diarrheas in bottle-fed children have led to a great reform in the management of dairies, and even if it should be proven that Shiga's bacillus is the etiological factor, its transmission through the milk supply cannot be ignored.

Cases of poisoning by milk and ice cream were reported long before we knew the nature of tyrotoxicon by Haschek, Hagner, Cameron, Barruel, Orfifa, Marjolini, Bonorden, Hasset, Schroff, and others, the symptoms in these cases being nausea, vomiting,

dryness and a sense of constriction of the throat, vertigo, colic, and purging, with a tendency in some cases to collapse, in others to numbness of the extremities and stupor.

The history of Vaughan's discovery is interesting, and should be briefly mentioned. In 1884 he isolated a poison found in poisonous cheese, and called it tyrotoxicon. In November, 1885, he found the same substance in old milk. In June, 1886, he demonstrated its presence in poisonous ice cream and in milk which had already undergone lactic-acid fermentation, and he called attention to the probable relation of tyrotoxicon to cholera infantum and other kindred diseases. In July, 1886, he found this poison in a sample of milk which had evidently caused the symptoms of cholera infantum in a babe seven months of age. In April, 1887, Dr. Stanton, the health officer of Cincinnati, demonstrated tyrotoxicon in poisonous creampuffs.

2. *Milk May Be Rendered Unfit for Use by Improper Food and Care of the Animal.*—The disease described as milk sickness or trembles by some American writers, and characterized by great weakness, constipation, vomiting, fetor of breath, and muscular twitching, was believed to be due to cows feeding on *Rhus toxicodendron,* but no cases have been described in recent literature. Cases of diarrhea, and even severe forms of gastro-enteritis, have been traced by Sonnenberger, Ratti, and Mackay to the milk of cows and goats feeding upon meadow saffron and euphorbiaceous plants. The milk of animals fed on carrots, turnip tops, and also that which is yielded after they have been turned out to pasture for the first time in the spring, is changed in an unaccountable manner, and has frequently caused vomiting, abdominal pains, and diarrheas in hand-fed children. Among the meadow plants, apart from species of *Euphorbia* and *Ranunculus,* Husemann regards the *Gratiola officinalis, Aethusa cynapium,* or fool's parsley, and different varieties of sorrel and mushrooms as being especially objectionable.

The milk of swill-fed animals has often a peculiar taste and odor, and is said to cause hyperacidity of the urine and consequent eczema. M. Touissaint called attention to the fact that in the district of Argenteuil deaths from gastro-intestinal diseases have increased in frequency among bottle-fed children since the establishment of a large distillery, the cows being fed on brewers' grain and other distillery products, and the milk presenting an acid reaction.

Ostergas states that the milk of animals fed with expressed sugar-beets is destructive to calves on account of the excess of potassium, and hence objectionable for human consumption. Bollinger reports injurious effects from castor-oil cakes, and Schmidt-Muhlheim attributes diarrheal attacks to the admixture of wild mustard in the rapeseed oilcake fed to cows.

[*To be Concluded in December.*]

REVIEW IN NEUROLOGY.

Under the Supervision of Robert Reuling, M.D., Baltimore.

GENIUS AND DEGENERATION. H. Edwin Lewis, M.D. *The Alienist and Neurologist,* Vol. XXVII, No. 1.

The following article will no doubt give the reader a very clear idea of a subject frequently treated in literature of today, but which, unfortunately, is often presented in a style little adapted for the average reader whose time for deeper mental concentration is limited. The author gives the following general classification for the attributes which permit the exercise of co-ordinate thought:

1. Consciousness, which precedes all thought phenomena and renders the individual appreciable to himself and in his relations to the external world.
2. Attention, which makes the individual cognizant of surrounding objects.
3. Observation, which enables the individual to note and discriminate the specific character of different objects.
4. Conception, which gives the individual the power of recognizing the logical significance of objects.
5. Memory, which enables the individual to retain the impressions derived from stimulation of the foregoing faculties by external objects.
6. Judgment, which gives the individual the power of correct deduction and adaptation of the impressions resulting from normal observation and conception.

Incidentally, it should be understood that all these faculties are materialistic in their impressions, and study of psychic phenomena shows that they can never be anything else. The actual existence of things alone can stimulate them, and as a result the normal mind is always material in its estimation or expression.

There are individuals, not ordinarily considered insane, who nevertheless present deviations of mentality which are only thought to be the result of eccentricity, moral perversion, or errors of judgment. The alienist and student of psychology, however, recognizes such individuals as quite within the borderland of insanity, and it is with one of these phases of what, for lack of a better term, may be called indefinite alienation that this paper has to deal.

"I refer to the anomalous faculty of genius. In order to make myself clear and prevent any misunderstanding of what I say later on, permit me to define what I mean by a true genius. I refer to those individuals who possess unusual development of some special mental faculty which assumes an original and startling method of expression and which usually exists at the expense of normal cogency of thought and action."

Such expression may manifest itself in connection with some extraordinary gift for mathematics, music, painting, sculpture or poetry, or it may assume extreme development of the memory or will. In whatever form it is expressed the unique character or

originality of the product depicts the genius. It should be remembered, however, that originality means the first copy, and the thoughts or products of a genius have no prototype. They may be copied, but they are no copy. In other words, they are outside the rational circle of cause and effect.

Genius is the capacity for spontaneous imagination or imagination *de novo,* and is therefore unreal. Talent is simply skillful technique applied to material or pre-existing things, and is essentially real. It is proper to speak of the genius of Poe, Whitman, Wagner, Rembrandt or Beardsley, or the talent of Shakespeare, Tennyson, Goethe, Holmes, Gounod, Beethoven, and Bonheur. Careful study of these two classes will demonstrate the grounds on which the author makes a distinction between talent and typical genius. He quotes Seneca's well-known statement that "there is no great genius free from some tincture of madness."

Spontaneous or original ideation cannot take place in the normal mind, for all psychic factors leading up to this function of the mind are so intimately connected with the memory of material stimuli that the imagination cannot separate itself from the causes of past sensations. In other words, the simultaneity of thought with past and present stimuli is such that its normal expression must always be in terms that memory alone can supply. The principal symptoms manifested by real genius, in addition to general illogical expressions, are egoism, eroticism, incoherence, megalomania, and senseless repetition of words or sounds in the writings; inversions, distortions, and contradictions in the created products; sensualism, hallucinations, delusions, and perversions in the mental character, and the physical defects of the individual himself. Not all these symptoms are present at the same time in those afflicted with genius, nor are they equally prominent in all cases, but there is nearly always sufficient variation from normal standards in every true genius to warrant the diagnosis of mental degeneration or perversion in almost every instance.

The author gives as a typical example of the ideation of a genius Edgar Allen Poe's poem, "The Raven." He says: "In this particular poem the thought expressed is originally imaginative, and as a consequence distinctly unreal. It represents something that does not nor could exist, and herein lies the genius, for the thought describes nothing but a pure creation of Poe's mind, with no material basis for its logical conception. The same is true of the thoughts in "The Bells" and many other poems. In Wagner's musical creations, especially those of later life, we find the same incoherence, the same inattention, and random expression. His conception of harmony and melody must have been decidedly vague, and it is generally conceded by students of musical science that his capacity for melodious composition was slight. This inattention has resulted in indiscriminate combinations of musical sounds that cannot fail to offend the normal ear, inasmuch as they express no definite emphasis or conclusion. Wagner has styled these unfinished products "unending melody." This illogical con-

ceit, perhaps, more than anything else shows Wagner's mental alienation.

* * *

THE PROPHYLAXIS OF SYPHILIS. MM. Metchnikoff and Roux. *The British Medical Journal* (review from same), May 19, 1906, No. 2368.

Although this review does not deal with a strictly neurological subject, still the prophylaxis of syphilis has such an all-important bearing on the prevention of nervous disease that its importance is evident.

At the last meeting of the Académie de Médecine MM. Metchnikoff and Roux communicated the results of recent experiments made to show that the inoculation of man with the virus of syphilis is harmless if certain preliminary precautions are taken. Experiments on the monkey showed that rubbing in calomel ointment at the seat of inoculation of the virus prevented the development of syphilis if the inunction is done a few hours after inoculation. Thirteen experiments on monkeys having given positive results, the authors considered an experiment on a human subject was permissible. A medical student free from any syphilitic taint, either hereditary or acquired, offered himself for the experiment. He was inoculated with the virus from two hard chancres, one of 8 to 10 days' duration, the other a month old. The seat of inoculation was at the junction of the glands and prepuce. At the same time they inoculated with the same virus four macaques and one chimpanzee. One hour after the inoculation the medical student and one of the macaques were given an inunction for eight minutes with calomel ointment 1 in 3. A second macaque received the same treatment after an interval of 20 hours. The two remaining macaques were kept to control the experiment, and did not receive any treatment. These two animals developed the primary sore 17 days after inoculation. The monkey treated 20 hours after inoculation developed a chancre on the thirty-second day. No symptoms appeared in the medical student, either on the skin or mucous surfaces, and no change took place in the lymphatic glands or viscera. The same result was obtained in the macaque treated with calomel ointment under same conditions. Three months having now passed since the beginning of the experiment, Metchnikoff and Roux consider it conclusive for colomel ointment as a prophylaxis for syphilis. M. Neisser has confirmed these observations on monkeys. The latter asked Metchnikoff if the calomel ointment used in such strengths produced irritation, but this Metchnikoff claims is, however, not the case.

* * *

THE EXTENT AND LIMITATIONS OF THE POWER TO REGENERATE IN MAN AND OTHER VERTEBRATES. T. H. Morgan, Ph.D. *The Journal of the American Medical Association*, Vol. XLVI, No. 18.

The author discusses the question why certain animals seem to lack the power to replace lost parts, and since man himself belongs

to this class the meaning of the fact is of direct and perhaps even of practical importance to us. He says: "An animal stops growing not because its cells have lost their power of further growth. This much seems certain, for if a part is removed all the cells at the cut surface begin to grow again. Moreover, this new growth does not take place, as some writers have assumed, from reserve cells, but from the formed tissues of the old parts. We must conclude, therefore, that in many, perhaps in all, animals the cells, with possibly few exceptions, still retain the power of further growth. The cells seem to have diminuted powers in this direction, and something in the body must restrain their activity after a certain size has been reached. What is the nature of this restraint? What retards the development as the size approaches that of normal for the animal? It has sometimes been assumed that growth is retarded or stopped because the animal can digest only so much food, and that the adult size is the stage of equilibrium between the intake of food and the amount of food used up. Now, if this assumption is true, we might attempt to test it in the following way: If we remove the tail or leg, for example, of an animal, the remainder of the body ought to grow larger, because the food that went to nourish the part removed can now be utilized by the rest of the body. In experiments carried on by the author it was shown that the regenerating part grows at nearly the normal rate, while the rest of the animal is starving to death. Clearly, then, the power of regeneration is not determined by the amount of food digested. It is due rather to the greater assimilative power of the cells of the new part.

It has recently been shown by Zeleny for the crayfish and for brittle stars that the greater the number of legs or of arms removed the faster each one grows. If more than one leg is removed, each regenerates faster than when only one is absent. This result recalls Pfluger's celebrated teleologic law—that in living beings the cause of every need is at the same time the cause of the fulfillment of the need. For example, the lack of food causes starvation, and the starvation is the cause of the appetite that leads the animal to search for food.

Difference in the Rate of Regeneration.—Perhaps the most important facts bearing on the problem under discussion are those connected with the rate of regeneration at different levels. If the tail of a fish is cut off near the base, the new parts grow faster than when the tail is cut off near its outer end. The new tail may be replaced as soon when much is cut off as when less is cut off. The result is independent of food, for it takes place in the same way, whether the fish is starved or fed. This relation between the rate of growth and the amount removed is found to occur in widely different animals.

MARYLAND MEDICAL JOURNAL.

JOHN S. FULTON, M.D., *Editor.*

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BALTIMORE, NOVEMBER, 1906

THE FACULTY'S SCRAPBOOK.

ONE of the more interesting books in the library of the Medical and Chirurgical Faculty is a scrapbook in which all the newspaper stories about the members are preserved. The duty of collecting such notices was imposed upon the librarian more than a year ago, and the exhibit is now quite bulky. Many medical societies in various parts of the country have done the same thing in recent years, believing that it furnished a mode of discipline for the self-advertising medical man. It was thought that a permanent record thus maintained by the society would bring forth explanations from the physicians most concerned, and that self-advertising would thereby be restrained. Explanations were not forthcoming, however, and some societies took the more peremptory step of calling their members' attention to these notices and asking for explanations.

The motives underlying this device were rather trivial, and one need not regret that the desired results failed to materialize. But the experiment was not an utter failure. Other and unforeseen results of great value amply justify the permanent preservation of such records. The experience of the Medical and Chirurgical Faculty in a year does not show that newspaper fame is much sought by medical men in Baltimore, but it does show that the medical profession has and exercises a great and growing influence in public affairs. If one should exclude from the records every item which could possibly be traced to private ambition, there would remain a fine volume in proof of beneficent professional effort. If one should exclude, besides, all the newspaper notices concerning medical men in public office, there would remain a record of public services by private physicians quite sufficient to indicate to future generations the people's great debt to the medical men of our day.

THE FACULTY AND THE NEWSPAPERS.

THE MARYLAND MEDICAL JOURNAL has often spoken against the mistaken view of ethics which restrains physicians from speaking to the people through the daily press, and we have repeatedly urged our belief that to

guide the people in the way of bodily salvation is one of the very highest professional obligations.

People are eager to be taught; they have always heard the word gladly. That following of false prophets which so excites our scorn is in a measure our own sin, for we have held our knowledge too much like oath-bound mystery, and have not heeded the children's cry for bread. If the events of recent years have made anything in medicine clear beyond the possibility of mistake, it is that many of the chief mysteries of practical medicine are now simplified quite down to the average layman's understanding. To withhold this saving knowledge from the people in these days is to default upon our lawful contribution to the general good. It is to prolong the survival of ignorant quackery and to maintain a considerable barrier in the way of medical progress. In some lines, indeed, as in public hygiene and in experimental medicine, the rate of future progress depends very largely on our activity in propagating medical knowledge among the people.

We have already said that the Faculty has a most creditable record in this work. The existence of the scrapbook suggests that the Faculty might plan in a definite way to furnish the medical information which current events bring into demand. It is easy to anticipate some of the inquiries. Certain subjects come up for newspaper discussion year after year at the same seasons; other medical subjects have a sustained news interest, though usually the interest is ephemeral. Nearly always the newspapers desire immediate information for publication this afternoon or tomorrow morning. The newspaper man having a medical assignment thinks first of the physicians whose names carry weight or who are easy to interview. These are often not the best sources of information, but the reporter knows none better. Let us take an illustration. The writer was recently asked for an interview on the cocaine habit. He knew nothing about it and suggested the names of several well-known neurologists. Nothing came of it so far as publicity is concerned, and it seems probable that the neurologists knew very little about the cocaine habit. If the reporter had been sent to one of the larger dispensaries to interview certain young men who are as yet but little known, he would have learned more about the cocaine habit in two hours than the established specialists could have told him in a week. The subject is important and the medical profession should have said something about it. In this instance the profession itself would probably have lost much time in ascertaining the sources of definite information.

Here is a more commonplace instance: A well-known alienist recently read a paper which was widely published in the daily press. Times were dull (it was summer), and the sensation was good for two days. The writer was asked for an interview on these startling opinions about insanity. The reporter was referred to several Baltimore alienists. He was after a symposium if he could get it, he said, but it must in any event include the present writer's comments. The resulting newspaper story was not a symposium, but a solo, a very inadequate performance so far as medicine is concerned, and perhaps suggestive that the performer is willing to publish his opinions on a subject quite outside his chosen line. In each of these

instances the profession failed to meet a legitimate demand for medical information.

THE FACULTY'S PRESS COMMITTEE.

The president of the Faculty was authorized at the annual meeting to appoint a press committee, and one can foresee a distinct field of usefulness for that committee. It may be that the original motive of the scrapbook survives in the conception of a press committee. If so, one hopes that the committee may soon and completely outgrow this idea and lay hold upon the task which is really worth while, namely, to put the profession into its appropriate attitude toward the newspaper public. Our traditional attitude may not be effeminate and perhaps not artificial, though certainly it is not natural. This attitude may have—in a very few men it seems to have—a faint charm. But, in professional affairs or in society, this excessive shyness would be very tiresome, and pardonable only in the very young. It is certainly a non-virile attribute of the profession, and counts against civic virtue. If we should all admit the unclad truth, not many are strongly averse to being quoted in the public press, or much disturbed by anyone else's greater or less impressiveness when exposed in print, or deeply hurt when another has given an interview which we could have given less badly. Some, to be sure, appear fond of press notices, and perhaps a few seek them. What of it? Such conduct is most offensive to good taste, but its significance in ethics is so trivial, and its occurrence among medical men so unusual, that normal adults need not concern themselves about it. We need not profess, nor even confess, that we are ashamed of this garish little offense, but we ought to surround it and cover and extinguish it with the truly professional characteristics which will make us welcome whenever we come unreservedly into the public view.

THE DEATH OF GEORGE RASHID.

On October 10 the unfortunate Syrian leper, George Maroun Rashid, died in his rude camp near Pickens, W. Va. At the time of his death arrangements had been completed for his return to Syria. If these arrangements had been undertaken in July, he would in all probability have died in his native land. He had a serious heart lesion, and his hold on life was, on that account, precarious. The project to deport him was in the hands of men who have been severely criticised throughout the land on account of Rashid's pathetic adventures. The difficulties in such an undertaking are not very great; in fact, only one is a serious difficulty. The insatiable appetite for news was the only dangerous element in the project. It would have been necessary to outwit the newspapers in order to get Rashid safely across the sea. This could have been done and would have been done. Every other obstacle had been cleared away when Rashid died. In his death a few public officials have missed the satisfaction of turning the poor boy's face homeward, and have lost the chance to make amends for their instrumentality in the unscientific and inhumane procedures which made Rashid's history a telling exhibit against American civilization.

Medical Items.

BALTIMORE.

At the annual meeting of the Section of Clinical Medicine and Surgery of the Baltimore City Medical Society Dr. C. Urban Smith was elected chairman, and Dr. Harvey G. Beck, secretary.

Dr. Franz Keiber, professor of anatomy in the University of Freiberg, has been the guest of Dr. Franklin P. Mace in Baltimore during the month of October. He is on a tour of observation among the laboratories of this country.

Baltimore is about to have the long-needed municipal hospital for infectious diseases. The commission has decided upon the plans. The available money, $25,000, will suffice for but one building, but the site will accommodate other buildings, and the commission's plans have taken into account the ultimate need of a group of buildings.

The third course of lectures at the Johns Hopkins Medical School under the Herter foundation was delivered on October 8, 9 and 10 by Sir Almroth E. Wright, pathologist to St. Mary's Hospital, London. His subject was "The Therapeutic Inventation of Bacterial Vaccines and Its Application in Connection with Bacterial Disease." Dr. Wright gave also a demonstration on Thursday morning, October 11, and an extra lecture on "The Coajulation of the Blood" in the afternoon. The attendance on all these occasions was very large.

MARYLAND.

George Maroun Rashid, the Syrian leper, who was in Maryland for 10 days in July, died on October 10 in his camp near Pickens, W. Va. The death is said to have been due to heart disease.

On Tuesday, October 16, the 60th anniversary of the first surgical operation under ether was celebrated at the Massachusetts General Hospital in Boston. The hospital authorities propose to celebrate "Ether Day" every year on October 16.

The annual meeting of the Allegany County Medical Society occurred in Cumberland on October 2. The officers elected for the coming year are as follows: President, Dr. S. A. Boucher of Barton; vice-president, Dr. George L. Broadrip of Cumberland; secretary, Dr. W. R. Foard of Cumberland; treasurer, Dr. E. B. Claybrook of Cumberland; censor, Dr. E. L. Jones of Cumberland. The next meeting will be held at Frostburg.

The U. S. Government will erect at Washington a hospital to be known as the Walter Reed United States Army General Hospital. The building will measure 192 by 54.2 feet, and will be surmounted by a dome. It will be a three-story structure of brick and stone.

The State Board of Health has sworn out 20 warrants against a constable of Baltimore county for interring 20 bodies of unknown and pauper dead without first obtaining permits from the subregistrar for the district. All these interments have occurred within 18 months past.

Diphtheria is more prevalent in Maryland just now than at any time in the past 10 years. Outbreaks are reported in Anne Arundel, St. Mary's, Prince George, Howard, Baltimore, Garrett, Allegany, Washington, Cecil, Queen Anne, Caroline, Dorchester and Somerset counties. The mortality has been small, and but few of the outbreaks have spread far. Antitoxin has been used very liberally.

GENERAL.

Maj. Paul F. Straub of the Medical Department of the U. S. Army received from President Roosevelt, on October 6, a medal of honor in recognition of conspicuous bravery in the face of the enemy at Zimbales, Island of Luzon, on December 21, 1899.

The Wesley M. Carpenter lecture before the New York Academy of Medicine was delivered by Dr. Harvey W. Cushing of Baltimore. His subject was "A Discussion of Some Early and Some Late Complications of Cranial Injuries, Based Upon the Histories of Three Illustrative Cases."

By raising the standards for admission the College of Physicians and Surgeons of New York has materially reduced the first-year class. The number registering this year was 331, while the number entering last year was 405. It is said the general character of the freshman class is considerably better, as was expected.

Dr. Horatio C. Wood has resigned as pro-

fessor of materia medica, pharmacy and general therapeutics in the University of Pennsylvania. Professor Wood has been connected with the University of Pennsylvania since 1862, and has resigned on account of ill-health. His resignation has been accepted, and he has been made professor emeritus.

A BABY recently born on the lower East Side, New York, is said to have weighed 22 pounds at birth. It was the fifth child of its parents. The previous children are said to have weighed, in the order of their seniority, 10, 15, 16 and 18 pounds. Such a history ought to counsel prudence to the most ambitious parents.

ACCORDING to the New York *Sun*, an experiment in the simple life undertaken by a group of German authors, philosophers and painters came to a speedy and sad conclusion. They wished to live in primitive fashion, without clothing, subsisting on roots and fruits, and employed only in tilling the soil and tending herds, on the Island of Kabakon in the Bismark Archipelago. Two of the colony died from the effects of insufficient food and clothing, the native islanders killed another colonist and the remainder returned to civilization.

THE Cattle Commission of Vermont is charged with gross neglect of duty in connection with the disposal of diseased cattle. The law requires the bodies of condemned animals to be buried, but the Commission is said to have sold such carcasses for the manufacture of fertilizer. This does not seem a very heinous abuse of their powers, provided the proceeds of such sales were honestly accounted for. But it is also charged that a member of the Commission sold 200 condemned cows to a drover, who took them over into Massachusetts, where all but 20 of the animals were slaughtered and sold as food.

THE Tri-State Chess Association, an association of over 400 players, most of whom reside in the Mississippi valley, is arranging a correspondence match at chess, the Doctors vs. the Laity. It is desired to have physicians from every section of the U. S. engage in this match. Therefore, every chess-loving physician is urged to become a consultant in the case. The match will begin early in November; entries accepted until January 1. All who will play are urged to send name and address to the president, stating the number of games they will take on. There is no fee attached to the match. Address Dr. Van Nuys, president, Lorain, Ohio.

THE College of Physicians of Philadelphia announce that the next award of the Alvarenga prize, being the income for one year (about $180) of the bequest of the late Señor Alvarenga, will be made on July 14, 1907, provided that an essay deemed worthy of the prize shall have been offered. Essays may be on any subject in medicine, but cannot have been published. They must be typewritten, and must be received by Dr. Thomas R. Neilson, secretary of the college, on or before May 1, 1907. Each essay must be sent without signature, but marked with a motto and accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author.

THE medical and lay press of late contain notices of an American International Tuberculosis Congress to be held in New York November 14 to 16, and announcements that the American Anti-Tuberculosis League will meet at Atlantic City next June at the time of the meeting of the American Medical Association. Similar notices have been sent through the mails to many physicians in this country. Neither the gathering in New York in November nor the league proposing to meet at Atlantic City next June has any connection with the International Congress on Tuberculosis authorized at the last session in Paris, in 1905, which will hold its next meeting in Washington in 1908 under the auspices of the National Association for the Study and Prevention of Tuberculosis.

IN Virginia the State Medical Society makes recommendations to the Governor concerning appointments to the State Board of Health, and in some localities the same right is conferred by law on the local medical societies. If there were no law on the subject the medical profession might undoubtedly exercise a wholesome influence in such matters, but being charged by law with such functions the profession has but little success to its credit. Recently the Norfolk Medical Society had the opportunity to nominate a health commissioner for the city. The Society refused to recommend anyone, declaring that any member of the Society is competent to discharge the duties of the office. This action indicates the high-water mark of opulence in professional skill of a very special character.

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AN EXPLOSIVE EPIDEMIC OF WATER-BORNE TYPHOID FEVER.

By William Royal Stokes, M.D.,
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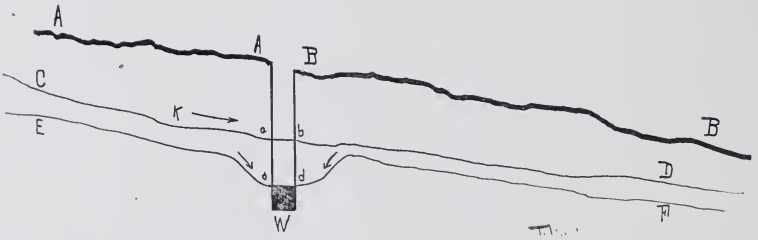
and Marshall Langton Price, M.D.,
Medical Officer, State Board of Health.

Even after the recognition of typhoid fever as a distinct disease its modes of transmission remained a mystery for some time. It was thought that decomposition of the earth and foul air might produce the disease. Poor ventilation was often blamed. Cold and even emotional disturbances were included in the etiology. Murchison,[1] the great English physician, in 1862 expressed himself as a firm believer in the pythogenic or decomposition theory, and he considered human feces as especially dangerous. He believed that some chemical agent emanating from feces and other decomposing materials produced the disease. Murchison was led to these opinions by observing several outbreaks of typhoid fever in schools, barracks, and other public institutions, in which he found faulty or choked drains and overflowing cesspools. These views also seemed confirmed by the drop in the typhoid death-rate in Hamburg from 48 per 1000 deaths from all causes in 1838 to 22 in 1869. This fall of more than 50 per cent. in the mortality from typhoid was attributed to the gradual installation of sewers.

The French school, under Trousseau, believed in direct aerial contagion from a patient to other persons, and these divergent views were not dispelled until the discovery of the typhoid bacillus.

These views of Murchison in emphasizing the danger from the intestinal discharges of typhoid patients were of some value in securing many precautions against stream pollution in England, but, on the other hand, prevented many proper measures being taken. The relation between typhoid discharges and infection was more clearly pointed out by Budd[2] in the *English Lancet* in 1856. This writer denied that the typhoid poison could develop spontaneously from decomposing material, and claimed that it devel-

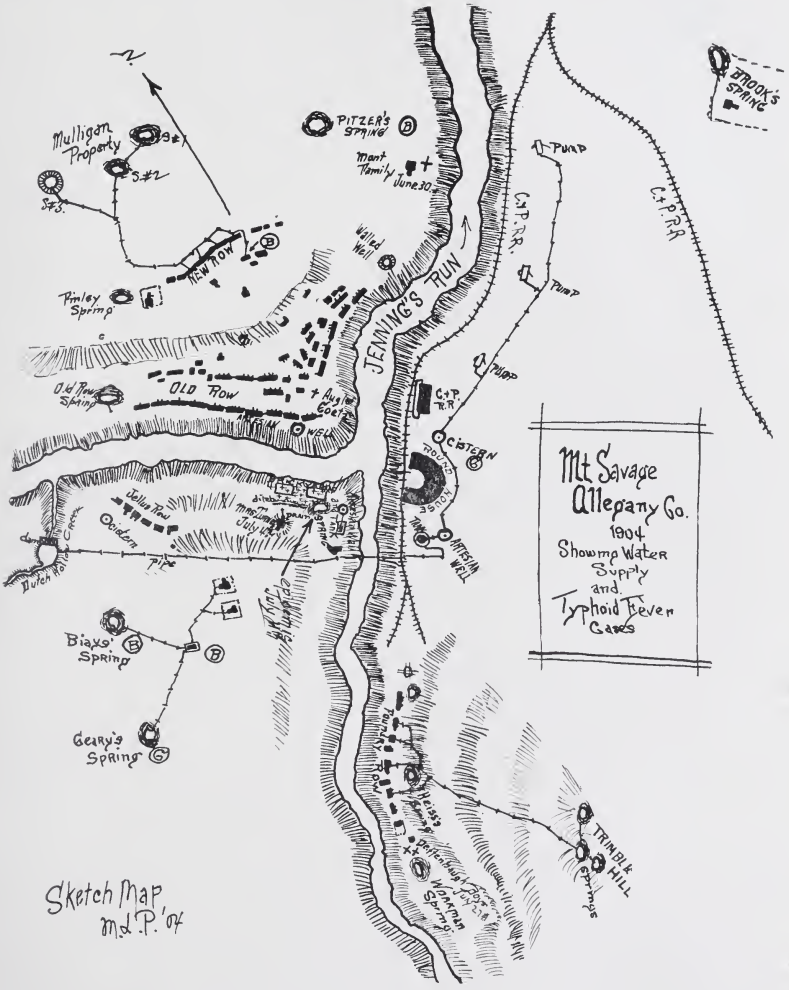
oped from the typhoid patient, and was probably propagated by means of the dejections. These sound views were obscured for many years by the curious theories of Pettenkofer,[3] who believed that the fluctuations in the prevalence of typhoid corresponded accurately with the height of the ground water. If this was low, the breeding places of the bacillus of typhoid fever were not covered by water. The ground saturated with the poison was thus in direct contact with the air, and by this means typhoid was communicated to healthy persons. Although no direct relation exists between the rainfall and the number of cases of typhoid, yet a number of independent observers have shown that there is a distinct correspondence between the fluctuation of the subsoil and the number of typhoid cases in a community. When the subsoil water rises the typhoid cases are fewer, and when the subsoil water falls the typhoid cases increase. The actual high or low water level has no direct effect on the number of cases, but the range of fluctuation. This would mean that when the subsoil water has fallen from a very high to a very low level more cases will occur than if it has fallen from a moderately high level to a moderately low level. The reason for this relation between the height of the subsoil water and the incidence of water following typhoid fever may be shown by the figure, which is similar to diagrams appearing in nearly all of the textbooks on hygiene.



In this figure *AB* represents the surface of the soil, W a well and *CD* the high subsoil water level, and *EF* the low subsoil water level; *ab* and *cd* the high and low well water. The following conditions will be present during the high-water level (it is to be understood that the subsoil water has a natural flow like surface water in a direction represented by the arrow *K*): The well will be filled to the height *ab* by a rapidly-flowing current of water. From this it follows that (a) the level of the well is not materially depressed by the general supply of water drawn therefrom; (b) that the water supplying the well will be practically all drawn from the direction *K*. Now, it is well established that wells drain an area directly proportioned to their depth, the radius of this area varying from 30 to 200 times the depth, according to soil and other conditions. It is not so well understood by medical men in general that the natural direction of the subsoil water away from the well may be actually reversed when the level of the well water is

much depressed below the subsoil water, and the well will then drain not only an increased area above, but an area actually below the level of the subsoil where the well is sunk.

Under the conditions of concentration there are also more typhoid bacilli in a given amount of water, and this also increases



the chance of infection to persons drinking it. This would only apply directly to well waters, and it is difficult to make out any reason for this influence of the fluctuation of the subsoil water in producing an increase of typhoid fever among persons drinking from surface waters.

POLLUTED WATERS AS A CAUSE OF TYPHOID FEVER.

The relation between typhoid fever and polluted water was recognized as early as 1872 in connection with an epidemic at Stutt-

gart. The water supply was fouled by sewage, and the disease developed almost entirely among persons using this supply. In 1879 at Caterham and Red Hill, in Surrey, England, 47 cases occurred in the former place and 132 cases in the latter. Both towns obtained their water supply partly from a reservoir and partly from wells and cisterns. Forty-five cases in Caterham and 91 of 96 houses in Red Hill obtained their water from the reservoir. An inquiry by Thorne[4] showed that a workman at the bottom of a shaft connected with a water conduit was suffering from walking typhoid, and he had often deposited his dejecta in the shaft emptying directly into the conduit. The outbreak began 14 days after this befouling of the water supply.

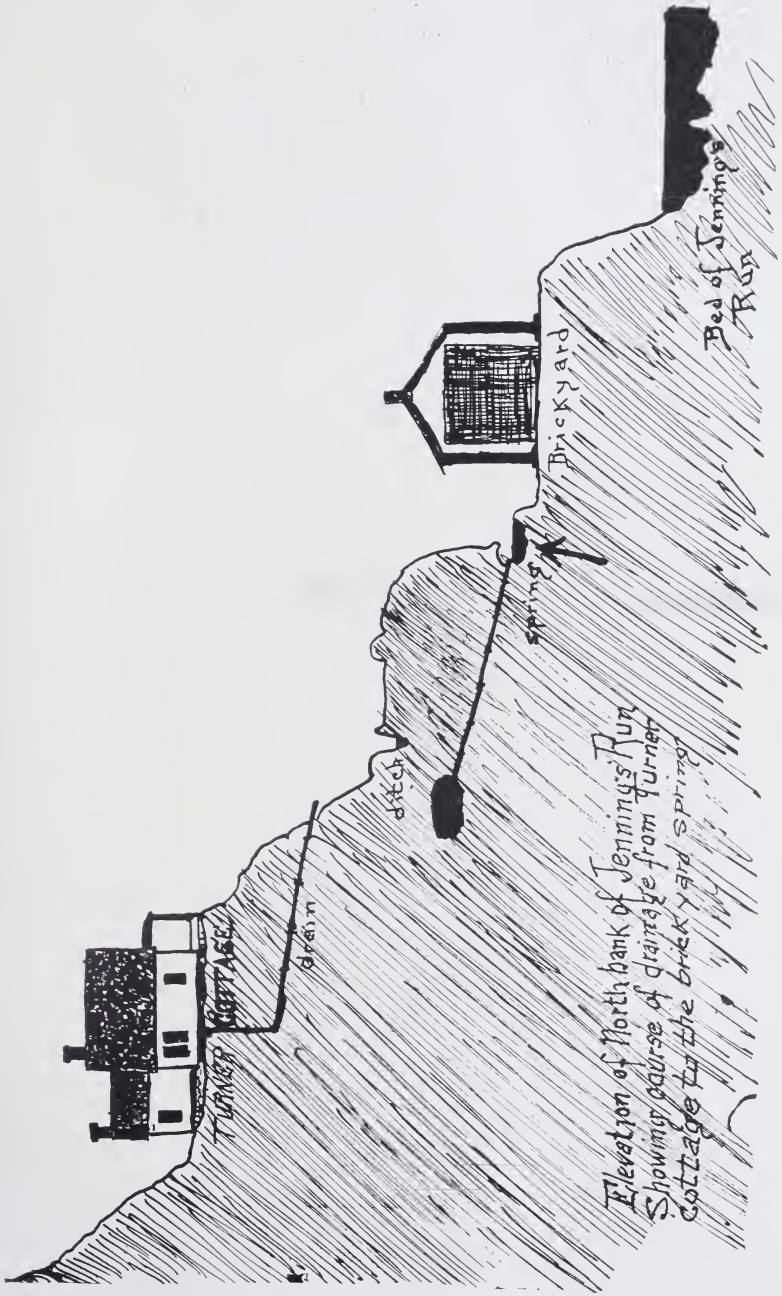
In 1874 an outbreak of typhoid fever described by Brown[5] took place at Mansfield, Pa., in a boarding school which was supplied with drinking water from a pure artesian well. Many persons, however, preferred the water from a well which was later found to be polluted by a cesspool. Twenty-eight of the 69 boarders developed typhoid fever, and all of these used the polluted well water. Those who escaped used the artesian well water. These early studies have been confirmed by the more exact investigations which have been made since the discovery of the typhoid bacillus, and all doubt concerning this agency as a cause of typhoid epidemics has been removed by the actual isolation of the typhoid bacillus from several water supplies.

Hirsch's[6] statement, made before the discovery of the typhoid organism, "that few points in the etiology of typhoid fever are so certainly proven as the conveyance of the morbid poison by drinking water," seems almost prophetic in the light of recent investigations.

Pfeiffer[7] has described an epidemic of typhoid fever in a small town in Germany called Zehdenick which originated from a well. The outbreak resembles that which we have studied, and originated from two children with typhoid fever. Their unsterilized feces were emptied into a gutter which overflowed about 100 yards from the house into a well with a defective surface curb. This well water was used by 303 persons, and 94 persons developed typhoid during a period of two weeks. This was an attack rate of 31 per cent., and might certainly be described as an explosive outbreak. Many families living in the houses with the affected persons, but using a different water supply, escaped.

The outbreak of typhoid fever at Mt. Savage, Md., studied in this paper, belongs to a class of "water-borne" epidemics, of which a limited number have been collected, and to which every addition should be welcomed. Such an epidemic possesses the following features:

1. A human source definitely ascertained.
2. A single, or, at any rate, a very definite, pollution of drinking water of high degree or definitely limited in time, followed by:
3. An explosive outbreak of typhoid, with a high attack rate, affecting those who have taken the polluted water, with concurrent



Elevation of North bank of Jennings' Run
Showing course of drainage from Turner
Cottage to the brickyard spring

exemption from attack among those who, otherwise similarly situated, have taken only non-polluted water.

It is evident that the possession of these facts must be conditioned on intimate knowledge of all the sick and of all the well in a given community. The population that will best furnish such data is probably a military garrison. Valuable data have been gained from garrison outbreaks in the past, but the rapid advance of military hygiene has made recent data of the kind very rare.

These factors are probably most often found in cholera epidemics, in which the relation between cause and effect is clearer and more direct than in any other water-borne disease. The population of a mining and railroad town, such as Mt. Savage, will furnish data nearly as accurate as those from military garrisons. The population of the town consisted mainly of employes and officers of the Union Mining Co. The buildings were the property of this company.

THE EPIDEMIC.

On July 4 Mrs. T., who occupied a small house about 100 yards above the brickyard on a rather steep incline forming the north side of the smaller branch of Jenning's Run, and who had just returned from nursing her brother, was taken ill. Mrs. T.'s infection was probably contracted from her brother, as she was taken sick as soon as she returned.

All the drainage from her house was conveyed through a four or six-inch iron pipe which emerged from the ground and ended about 10 or 20 yards below on the side of the hill. This mixed drainage found its way down the hill, a small portion of which reached an open drain. A road runs alongside the open drain over a bank of fire-clay above the brickyard. At the bottom of the fire-clay bank a short distance from the open drain was a large flowing spring, which furnished an abundant supply of clear water of pleasant taste and appearance and agreeable coolness. The water was drunk by all of the brickyard employes, about 200 in number. Immediately below the brickyard were the roundhouse and railroad shops, where about 125 men were employed. All of these men drank artesian water. During the early part of July heavy rains occurred, washing surface impurities down the side of the mountain upon which the T. cottage was located and into Jennings' Run and the spring below.

On July 11, about one week after Mrs. T.'s arrival, 20 workmen from the brickyard reported to the company physician, complaining of headache, backache, lassitude, and digestive disorders. This strict limitation of these cases to the brickyard employes and the similarity of their symptoms suggested to him a common source of infection. On the following day, July 12, he posted a notice on the spring declaring the water bad, and directing the discontinuance of its use. Five additional men reported on this day with typhoid prodromata. From the railroad and other shops supplied by artesian water no cases appeared.

The brickyard men again were enjoined against the use of the spring water, but a certain number continued to use it during the succeeding 12 or 13 days.

Additional cases were now appearing at the rate of five or six daily, and some of the original cases were showing unmistakable evidences of enteric fever.

On July 25 the company's physician effectually prevented the further use of the water by the destruction of the spring. Mineral ashes and fire-clay were thrown into the spring until the latter was covered for several feet.

The chemical and bacteriological reports of water samples returned by this time indicated a bad pollution of the brickyard spring and the pollution of a number of other wells and springs of the surrounding area to a greater or lesser degree.

Cases of typhoid fever continued to develop after the extinction of the spring until August 10 and 16 days after the last of the brickyard spring water was drunk. The total number of cases in this epidemic was 115, and of these 80 were noted as cases confined to bed and 35 were called "walking typhoid fever." There were only three deaths. A number of specimens of blood sent to the bacteriological laboratory gave a positive Widal reaction.

THE PERIOD OF INCUBATION FOR TYPHOID FEVER.

It is not always easy to determine the date on which the infectious material has first entered the intestinal tract, since the exposure to infected water or foods is often continuous. No definite date of infection can therefore be determined.

Fulton[8] in his study of his milk epidemic at Elkton, Md., mentions several outbreaks of typhoid fever in which the date of exposure was limited to one day. The period of incubation could thus be accurately determined. In one instance a regiment of soldiers only drank from an infected well on one day, and out of 1200 men three developed the fever 2 days later, seven 3 days later, six 4 days later, three 7 days later, one 9 days later, two 10 days later, and one, respectively, 11, 12, 13 and 14 days after drinking the infected water. This study shows how variable the period of incubation may be, and certainly is somewhat surprising in the short period of incubation of the majority of the cases. In another case cited in the same article a polluted well was used only on the 4th of July, and the period of incubation of those who developed the fever was 23 and 28 days. Other cases are mentioned of two children drinking infected milk only once and developing the fever in five and seven days, respectively. In the Montclair outbreak exposure to infected milk gave incubation periods of from 14 to 27 days, while the Great Harwood epidemic gave one incubation period of two days and another of three weeks. The incubation at the Elkton milk epidemic averaged 14 days, the longest being 19 days.

From what has gone before it can be seen that the period of incubation in typhoid fever is a variable one, lasting from 2 to 28

days. This disease, therefore, differs from such conditions as the eruptive fevers, in which the period of incubation does not fluctuate between such wide limits.

The study of the epidemic which we have described does not admit of any exact statement concerning the periods of incubation, since it is difficult to fix upon the exact day that the typhoid bacillus may have begun to develop in the intestines of the workmen at the brickyard. Still, these workmen had been drinking from the spring without any ill-effect, and yet one week after the typhoid discharges from the T. house began to infect the spring 20 out of 200 of the workmen began to show symptoms of fever on the same day. It is fair to assume one week as the period of incubation for these cases, and since cases continued to develop daily until August 10 it is probable that most of these developed from the original exposure on or about July 4, when Mrs. T. was first taken ill. It would be impossible to compute the exact period of incubation for the other cases, which continued to develop until August 10, but a general survey of the epidemic seems to show incubation periods corresponding to those mentioned in the other epidemics and varying from one week to perhaps five weeks.

ATTACK RATE.

The so-called attack rate, or the percentage of those infected to the entire number of those exposed to the cause of infection, is also of interest.

In the striking Elkton milk epidemic it was computed that 368 drank the infected milk, and the attack rate was 16.3 per cent. In the epidemic at the Iowa State College the attack rate was 8.8 per cent. The influence of dosage or concentration of the typhoid bacilli also seems to have some influence, since the football players who were given a double allowance of milk gave an attack rate of 50 per cent.

CORRESPONDENCE BETWEEN BACTERIOLOGICAL FINDINGS AND THE EPIDEMIC RESULTS.

The bacteriological examination of the spring which supplied the brickyard workmen with water was found to contain the colon bacillus, and this demonstrated the presence of intestinal pollution. This does not mean necessarily that the water contains typhoid bacilli. It only shows that the way is prepared for the introduction of the typhoid bacilli from a case of typhoid fever. This was demonstrated in the case at the T. cottage.

The influence of concentration, as mentioned above, must have influenced the very large attack rate among the brickyard employes. About 108 of the 200 workmen in the brickyard developed typhoid fever, while seven cases were traced to other contaminated springs. This gives the very high attack rate of 54 per cent., which greatly exceeds the percentages mentioned above in connection with the milk-borne epidemics. This condition of affairs was probably due to the fact that large numbers of typhoid bacilli found their way into a small body of water, namely, the T.

spring. This concentrated suspension of bacilli was drunk immediately by the workmen, and the organisms were not attenuated by a prolonged existence in water.

THE WATER SUPPLY OF MT. SAVAGE.

The water supply is derived from the following sources: Three artesian wells, about 15 springs, water from Dutch Hollow creek, and one or two subsoil wells.

1. Water supplied by (a) Artesian well (*G*).
   (b) Water piped from Dutch Hollow creek (*G*).
2. Artesian well and water tank in brickyard (*G*).
3. Biay's spring (*B*),
   Geary's spring (*G*),
   emptying into a brick and tile tank.
4. Workman spring (*B*),
   Heiss spring (*B*),
   Foundry Row spring 1 (*B*),
   Foundry Row spring 2 (*B*),
   Three springs on Trimble Hill (*B*),
   supplying Foundry Row and vicinity of Trimble Hill.
5. Cistern and spring near roundhouse and shops.
6. Three springs on Mulligan property supplying new row and vicinity through cistern; piped into some of the houses. Water tap (*B*).
7. Artesian well (*G*).
   Old row spring (*B*),
   supplying old row.
8. Subsoil well near railroad shops (*B*).
9. Individual springs: Pitzer's spring (*B*).
   Brooks' spring (*G*).

All of these sources previously examined are marked *G* (good) or *B* (bad), as the case may be.

All of the water marked *B* contains the colon bacillus. The majority also contains chlorides in excess, an undue proportion of free and albumenoid ammonia, and several samples contain nitrites. All of the artesian well water is good.

DISPOSAL OF WASTE AND EXCREMENTITIOUS MATTERS.

The natural drainage of the town is remarkably perfect. Few artificial arrangements are necessary. The steep gradients and frequent rains fulfill all ordinary and extraordinary requirements. All surface pollutions are washed into Jennings' Run during heavy rains.

The system of earth closets is the only means of disposing of excrementitious matters. These closets are dug in the usual way, and when filled the superstructure is moved over a newly-dug trench. Very few are regularly cleaned. After a rain all of these closets are flooded, and after becoming filled to a certain degree no measures otherwise are required, as any further excess is washed into the stream. The closets are apparently so built as to facilitate

this process. None are tightly closed, and all give free access to air and flies. The bed of Jennings' Run contains gross human sewage at all times in addition to a miscellaenous collection of offal, dead animals, and refuse.

The odor during the day is usually offensive, and continues so until a heavy rain flushes the run, when all refuse is carried down and emptied into Will's creek and thence into the Potomac.

The presence of these open-earth closets constitutes a system in no whit superior to the latrines of certain military camps during the Spanish-American War of 1898. It was pointed out to the medical authorities of Mt. Savage that the presence of open trenches of this character during the fly season gave rise to danger of a secondary epidemic appearing about two weeks or more later, in which the water supply would play a subsidiary part, the main means of transmission being an intermediary insect, particularly the fly, which played the leading *rôle* in the considerable epidemics at Camp Alger and Camp Thomas, Chattanooga and other military camps in 1898.

PROTECTIVE MEASURES TAKEN.

The town of Mt. Savage has a population of 2645, and the various contaminated wells and surface closets are entirely conducive to the general spread of typhoid fever both by contaminated water and by flies infecting various foods with their soiled legs and bodies.

The history of the epidemic shows, however, that a case of typhoid fever was the starting point for other cases, and the general attack rate of the community might be regarded as seven cases in 2645 inhabitants, or .2 per cent. The difference between this rate and that of the workmen (54 per cent.) was simply due to the fact that non-disinfected typhoid excreta contaminated the brickyard spring, while most of the other springs or surface closets in the town were not actually infected with bacilli from a case of typhoid fever.

This emphasizes the importance of the disinfection of typhoid excreta by 5 per cent. carbolic acid. As said by Cole,[9] if this simple preventive were always applied, typhoid fever would soon disappear both from rural and urban communities.

As a protective measure the infected brickyard spring was destroyed and the other springs and wells containing the colon bacillus were sealed up. The citizens were advised to boil the drinking water, and the surface closets were covered with sufficient earth or lime. Personal and domestic prophylaxis in the houses of typhoid patients and disinfection of typhoid excreta were all advised by notices to the citizens, and these regulations were made effective by the daily inspections of the local health officers.

A general water supply from artesian wells was also recommended for the use of the town.

CONCLUSIONS.

The conditions of the earth closets in Mt. Savage and their situation on the side of the mountain constitute a serious menace to

towns using water from the Potomac river or its north branch. The reality of this menace was demonstrated in Washington, D. C., about two weeks later when the deaths from typhoid fever suddenly increased tremendously. Washington is on the Potomac river, about 150 miles down the stream from Mt. Savage.

Complete but gradual subsidence of the epidemic took place in Mt. Savage after the above recommendations were carried out.

The very large percentage of non-immunes affected by this water from the brickyard spring, and the very short period of incubation of 20 of the cases (one week), render it probable that this spring was polluted to a degree comparable only to a bouillon culture of the bacillus typhosus.

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Receipt of the following books is acknowledged:

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PROCEEDINGS

OF THE

MEDICAL AND CHIRURGICAL FACULTY

OF MARYLAND

Editorial and Publishing Committee.

ALEXIUS MCGLANNAN, M.D. J. A. CHATARD, M.D. JOHN RUHRAH, M.D.

Secretaries of the County Societies are earnestly requested to send reports of meetings and all items of personal mention and of local or general interest for publication addressed to Dr. Alexius McGlannan, 847 North Eutaw Street, Baltimore.

BALTIMORE CITY MEDICAL SOCIETY.

Annual Meeting.

847 North Eutaw Street, 8.30 P. M.

President: W. S. Thayer. Secretary: W. E. Magruder.

December 4, 1906.—1. Report on behalf of Special Committee for Prosecution of Unregistered Physicians—Dr. H. Harlan.

2. Report of Board of Censors—Dr. C. E. Brack, Chairman.
3. Election of members.
4. Election of officers.
5. Pruritis publicitati—Dr. J. Ruhräh.
6. Suggestions for hospital reorganization, with special reference to a greater effectiveness of treatment therein—Dr. R. C. Cabot, *by invitation.*

COUNTY SOCIETY MEETINGS.

THE Baltimore County Medical Society met Thursday, November 15, at Stoddard's Hotel, Catonsville, and heard papers read by Dr. T. S. Cullen on "Recent advances in liver surgery," and Dr. W. T. Watson on "Infection of the innocent."

The president, Dr. J. H. Jarrett, presided. A luncheon followed the meeting. It was decided to hold the next meeting in January, and hereafter to hold meetings of the society in the different towns throughout the county.

THE annual meeting of the Frederick County Medical Society was held at the Emergency Hospital, Frederick, November 14.

The following officers were elected: President, Dr. J. W. Downey, Newmarket; vice-presidents, Dr. W. C. Johnson, Frederick, and Dr. J. H. Lieb, Mount Pleasant; secretary, Dr. I. J. McCurdy, Frederick; treasurer, Dr. W. A. Long, Frederick; delegate, Dr. F. B. Smith, Frederick; board of censors, Drs. C. F. Goodell, F. B. Smith and W. H. Wagner.

THE Montgomery County Medical Society met in Waters Hall at Germantown Tuesday, October 16, physicians from every section of the county being present.

Interesting papers were read by Dr. James Dudley Morgan, president of the Medical Society of the District of Columbia, and by Dr. William T. Pratt of Potomac, Montgomery county. Drs. W. L. Lewis, J. E. Deets, R. Brooke, J. L. Lewis and others took part in the discussions.

The following were elected to membership: Dr. George M. Boyer of Damascus, Dr. W. L. Moulden of Bethesda, Dr. G. W. Jones of Burtonsville.

Dr. Patience S. Baurdeua-Sisco of Washington applied for membership. Her application was laid over until the next meeting, some of the physicians being opposed to a woman physician becoming a member.

THE Medical Association of Prince George's County met at the Maryland Agricultural College, College Park, November 10. Dr. W. O. Eversfield, president of the association, and Capt. R. W. Silvester, president of the college, welcomed the members.

After the business of the association was transacted the members were entertained at luncheon by Capt. R. W. Silvester.

THE Queen Anne's County Medical Society met at the Arlington Hotel, Centreville, Md., November 14, 1906.

The principal subject for discussion was "The business side of the physician's life." The discussion resulted in the formulation of a uniform fee table for the county.

Dr. Samuel T. Earle, councilor for this district, was present and gave a short review of Sir Almouth Wright's recent lectures at the Johns Hopkins.

The following officers were elected for the ensuing year: President, Dr. J. M. Corkran, Centreville; vice-president, Dr. Walter H. Fenby, Ruthsburg, secretary and treasurer, Dr. E. F. Smith, Centreville; censors, Drs. H. R. Hopkins, Queenstown, and Laura E. Reading, Hope.

Alternate delegate to the general session of the Faculty, Dr. Norman Dudley, Church Hill.

Two new members were admitted to the society, viz., Dr. R. H. Ford, Queenstown, and Dr. William T. Henry, Stevensville.

THE regular annual session of the Worcester County Medical Society was held in Snow Hill on Tuesday, November 6. Medical topics were discussed and a most successful meeting was held both from a social and medical standpoint. Former officers were re-elected as follows: President, Dr. J. S. Aydelotte of Snow Hill; vice-president, Dr. E. J. Dirickson of Berlin; secretary, Dr. R. Lee Hall of Pocomoke; treasurer, Dr. Paul Jones of Snow Hill. Dr. John L. Riley of Snow Hill was elected censor to succeed Dr. W. D. Straughn, retiring officer.

The next meeting will be held May 21, 1907.

[*Papers Read at the Semiannual Meeting of the Medical and Chirurgical Faculty at Annapolis, Md., September 27-28, 1906.*]

REVIEW IN SURGERY.

By Alexius McGlannan, M.D.

REVIEWING surgical literature of the last few years one is struck by the constant advice that surgical intervention be instituted in the early stage of disease. Appendectomy in the first day of appendicitis is the recognized treatment, and there is a steady movement toward operation at the onset of many other diseases heretofore sent to the surgeon in the terminal stage. The extent of interference necessary for cure and the consequent disability is almost always directly proportional to the time elapsing between the onset of the disease and the operation. The relative innocuousness of these early operations under present technique has sent the border line between medicine and surgery radiating into the domain of internal medicine and has increased the responsibility of the surgeon for accurate diagnosis.

Frequently the surgeon's duty is limited to exploratory incision, unfortunately often only to confirm or to establish a diagnosis, but the more common employment of exploratory incisions has resulted in a lessening of the occasions for their use. A few years ago our knowledge of disease depended on the structural changes found at post-mortem examination; consequently was entirely that of terminal conditions, and therapeutics based on this information was hopeless. By exploratory incision we study diseased conditions during life, and have developed a living pathology, pointing out rational therapy. The scientific advance of surgery has been most marked in this field of surgical pathology, resulting in greater accuracy of diagnosis and better treatment of surgical diseases. Earlier institution of exploratory incision in obscure conditions will further increase the number of diseases to be removed by the surgeon from the group hopeless or unimproved to the group cured by operation. For example, tuberculosis of the kidney[1] is now known to be bilateral only in the terminal stage, and is diagnosed and cured by operation during the early one-sided period.

TUMORS.—The many studies into the etiology of tumors have not as yet discovered any specific cause for the new growths. All the reports of discoveries of parasites and other organisms as the essential cause of tumors have proven false. The best work now seems to be that done by various commissions,[2] collecting and studying great masses of data concerning new growths. Ehrlich[3] in Germany and Gaylord[5] and Loeb[4] in this country continue the study of experimental carcinoma in mice. Their results, while very interesting, so far have not indicated any method for producing immunity nor any new cure. One very interesting result of inoculations, obtained by both Ehrlich and Loeb working inde-

pendently, is the development of sarcoma after inoculation with carcinoma. Both experimenters observed the development of spindle-cell sarcoma following the inoculation of an animal with virulent glandular carcinoma. In this connection a tumor in the collection of the College of Physicians and Surgeons described by Dr. McCleary[6] is of much interest. This tumor is a sarcoma-carcinoma of the breast, and as far as I have been able to find out is the first one recorded.

The fruitless search for immunizing agents and specific serums, etc., for cancer has left the cure of malignant growths to surgery. Early and complete operation is the only hope of the patient. The tumor, its metastasis and the tissues in the route of metastasis, must be removed at the first operation unless technically impossible. Any other attempt at cure is certain to fail.

Of the sum of preventable human misery a large proportion consists of the pain of cancer victims who have permitted the time of operative cure to pass while they have tried in vain the many non-surgical systems of cure. Serum, light, caustic, radium, trypsin, all have their lists of victims—horrible examples of neglected opportunity. The recent popular article on the trypsin cure proves to the educated observer the intense ignorance of the writer concerning cancer, and his reported cures are so clearly the observations of biased investigation that they must be disregarded. But this article will be read by many and will result in untold anguish and many deaths before the deluded public will realize the falsity of the claims, and another impediment has been placed in the road of the truth that surgery—early, complete operation—is the only cure for cancer.

Early diagnosis is the most important point in the present treatment of malignant tumors. Most often this is best made by inspection of the tumor at exploratory incision. Today the surgeon must be familiar with the naked-eye appearance of tumors as exposed by incision. Frozen sections for the most part are no more definite than gross appearances, and the removal of a piece of tumor, with postponement of the operation until hardened sections are made, is never justifiable.

In addition to this knowledge of the appearance of tumors, the surgeon must know the possibilities of cure in different varieties, so as to determine the extent of operation justified. Extensive mutilating operations must not be performed for benign tumors nor for hopeless malignant ones. This point is of interest in the present-day treatment of sarcoma, especially of the extremities. A few years ago amputation at the highest joint was the treatment advised for sarcoma of the extremities, and many extensive operations were successfully performed. Studying the after-results of these operations with regard to the type of tumor present, it has been found that in certain types of sarcoma death from internal metastases occurred, no matter how extensive the operation, while other types were cured by relatively slight operations, often after repeated operation for local recurrence.

Therefore, unless the limb is useless from fracture or deformity, we no longer perform high amputation for the cure of sarcoma. The relatively benign types can be cured by excision, resection or even curettement, and in the case of the highly malignant tumors we do not afflict the patient with a mutilating operation in a vain attempt to cure a necessarily hopeless condition.

Such operations as removal of the entire upper extremity by amputation through the clavicle and scapula are rarely reported now.

THE MALIGNANT TUMOR DEVELOPED FROM THE PIGMENTED MOLE is practically incurable. At present our efforts must be toward the determination of what moles are likely to become malignant, and remove these in the benign stage. Any pigmented mole which has begun to grow should be immediately excised. There are a few cases on record where the removal of a malignant mole and later of glandular metastases has resulted in an apparent cure. One patient is alive and cured three years.

INFLAMMATION.—A great advance in the treatment of inflammation is the use of artificial hyperemia as advocated by Bier.[7] The treatment is based on the fact that the bactericidal and antitoxic properties of the blood are due to substances existing in the plasma, and Bier argues that an increase of blood plasma in a part inhibits the local development of bacteria and neutralizes toxins, at the same time increasing the nutrition of the cells of the part and the local resistance, in this way preventing the extension of inflammation and hastening resolution.

Bier distinguishes an active and a passive hyperemia. The active arterial hyperemia is produced by dry heat at high temperature. The passive venous hyperemia is produced by various apparatus to obstruct venous circulation. The simplest method for producing passive hyperemia is in a limb. Here a thin and wide Esmarch bandage is applied above the inflamed area with sufficient force to interfere with venous return, but not with arterial flow. The pulse below the constriction must not be extinguished, and the limb must become slightly warmer than its fellow. Edema of the limb follows in a few hours, and is maintained for a varying length of time according to the degree of reaction. The constricting band is then withdrawn and the limb elevated until the edema disappears, and the operation is repeated. The alternate constriction and elevation is intended to give repeated exudates of fresh plasma.

For other parts of the body suction apparatus is used to obtain and maintain the hyperemia. With subcutaneous abscesses the pus is drawn out of a small skin wound by a bell-glass suction pump, the surrounding skin being protected by an ointment.

Bier's method has attracted much attention, and numerous reports are now appearing in the literature.[24] Acute and chronic inflammations of bone, infections of the skin, and internal organs of all types are being treated with almost uniformly good results. Some disappointments have occurred, but, as Bier has pointed out,

these were almost all at the hands of operators unacquainted with the details of the method. Bier lays stress on the length of time and degree of the hyperemia, speaking of this as the dosage and comparing it with the need of careful dosage with other remedies.

Personally, my experiences, though limited, have been very satisfactory. In St. Agnes and the City Hospital we have treated chronic osteomyelitis, gonorrheal arthritis, tuberculosis of bone and joints, acute abscesses by Bier's method, with very gratifying results.

Lennander[25] reports very good results from the use of pure phenol and alcohol in disinfecting infected wounds of all varieties. The report includes a general study of the action of phenol on the tissues and references to the literature of this method of wound disinfection, which was original with Powers of New York.

SYPHILIS.—The work of Schaudinn and Hoffman on the spirocheta pallida as the organism producing syphilis is the greatest contribution to the progress of syphilogrophy for many years. The frequent discovery of the organism of syphilis caused the new discovery to be received with skepticism, but all the reports since the first paper indicate at least the constant presence of this animal microparasite in syphilitic lesions. The best article on the subject is Flexner's Carpenter Lecture,[8] and a very good review of the subject is the one of Gottheil.[9] The organism is found in all lesions of acquired syphilis and in the blood and lesions of hereditary syphilis. Late reports tell of its presence in tertiary lesions. Metchnikoff and Roux have demonstrated the spirocheta pallida in the experimentally inoculated chancres of apes.

In the same review Gottheil[9] describes the technique of the injection treatment of syphilis by insoluble mercurials. He prefers the salicylate suspended in paraffin oil. I have always preferred a fat-oil suspension because of the unabsorbable nature of paraffin. This is a small matter, because even fat oils are absorbed very slowly subcutaneously, but a persistent mass of paraffin is occasionally unpleasant for the patient.

TUBERCULOSIS. — Surgical tuberculosis requires the hygienic and dietetic management of non-surgical infections. The open-air treatment[10] must supplement operation, and in many cases will supplant it. In tuberculosis of bone and joints proper fixation is required during the treatment in order to prevent deformity. Burrowing cold abscesses[11] should never be opened or drained unless the bone infection can be completely removed. A mixed infection of the draining wound is sure to follow, and may cause more and even fatal sepsis. The abscesses should be treated by aseptic aspiration and injection. Nature repairs tuberculous lesions by fibrous encapsulation, and in some localities (peritoneum and serous surfaces) occasionally with subsequent absorption. Therefore our injection should stimulate connective-tissue production. Murphy states that the addition of 2 per cent. formol to the 10 per cent. iodoform in glycerine gives the best mixture for this

purpose. The aspirating and injection needle should puncture the healthy skin a short distance from the abscess, never at the point of threatened rupture.

SURGERY OF BONES.—The open treatment of fractures is well discussed by Martin[12] in a recent paper. He recommends open treatment for simple fractures of any accessible bone, presenting an irreducible deformity which would interfere with function after union and for all accessible fractures when the fragments of bone cannot be brought into proper relation and held there. Martin advises incision as soon as it is certain that reposition is impossible by closed manipulation. [Delay for several days, with immobilization, will allow the soft parts to recover from their injury, and, in our opinion, will add to the chances for recovery.] The advantages and disadvantages of the various screws, nails, plates, etc., in regard to different fractures are well discussed in Martin's paper. The last paragraph of the paper is a warning: "The open treatment of fracture cannot be regarded as an emergency operation. Infection is disastrous; asepsis, proper tools, and trained assistants are absolute essentials, and without them no operation hould be begun."

Whitman[13] has brought forward the necessity of the flexed and abducted position for proper position of the fragments in fracture of the neck of the femur. Under anesthesia he puts the patient in this positon in a plaster cast. Anyone who has been trained in the use of the Smith anterior splint will be struck by the fact that Whitman's position is the one taught and employed in the treatment of fracture of the femoral neck with the wire splint and suspension.

Bloodgood[14] in *Progressive Medicine* calls attention to chipping fractures into joints. The diagnosis is difficult or impossible except by *x*-ray. These lesions are usually treated as sprains, and frequently result in permanent impaired usefulness of the joint.

A new point in diagnosis of fracture is the examination of bone by auscultatory percussion.[15] The stethoscope is placed over some accessible point at one extremity of the bone, while percussion is made at the other extremity. The sound is compared with sound obtained by examination of the corresponding uninjured bone. Whenever there is fracture there is loss of conductivity on the injured side.

TUBERCULOSIS OF BONES AND JOINTS require hygiene and climatic treatment like tuberculosis elsewhere. Bier[7] reports very favorable results from immobilization and passive hyperemia. The important points in the cure of tuberculous conditions are early diagnosis and prevention of septic infections. The *x*-ray and tuberculin for diagnosis and aseptic injections of material increasing fibrous-tissue formation, with immobilization until all pain has disappeared, are the principles of treatment. Neglected and septic conditions require free incision and drainage, and am-

putation is required when there are grave visceral lesions or amyloid degeneration.

SKIN.—W. Meyer[19] calls attention to the diagnostic significance of certain trophoneurotic lesions of the skin of the abdomen occurring with intra-abdominal cancer. The lesions are capillary nevi, flat, purplish, warty infiltrations, and freckle-like spots. He considers these lesions, when present, an important pathognomonic sign of cancer. I have observed the condition in a recent case, the skin lesions antedating the palpable tumor several weeks.

SKIN TUMORS.—Abbe[18] has given a very favorable report on the use of radium in the treatment of malignant tumors of the skin. The x-ray, Finsen light, and similar methods have also been employed with some degree of success in treating skin tumors, especially the epithelial tumors. In most reports too short a time has passed for a determination of the value of these methods. We know that special forms of light cauterize and promote healing of malignant ulcers, but local recurrence is the rule, and metastatic spread is not influenced. The only safe treatment for cancer of the skin, or for cancer anywhere, is early, complete removal by surgical operation.

BLOOD VESSELS. — Matas[20] has described endoaneurismorrhaphy, and several observers report good results following its use for the cure of aneurism. It is especially valuable in treating aneurism of the arteries of the limbs. Halsted[21] describes the use of a constricting silver band to produce gradual obliteration of the caliber of an artery.

Carrell's[22] are the most interesting contributions to the surgery of blood vessels. He describes experimental work on the successful end-to-end suture of arteries and veins, transplantation of sections of veins and arteries, reversal of the direction of the blood current by suture of artery to vein, and the successful transplantation of viscera from one animal to another.

Brewer[26] recommends a specially-prepared rubber adhesive plaster for closing incised wounds of blood vessels.

SURGERY OF THE ABDOMEN—Stomach.—Posterior gastro-enterostomy without a loop is the operation of choice in all cases when gastric drainage is required. Benign stenosis of the pylorus from muscular hypertrophy or ulcer, gastric and duodenal ulcers, and perigastric hepatic adhesions require the operations. Finney's gastro-duodenostomy is the operation for unindurated ulcer interfering with drainage by spasm of the pylorus. Carcinoma requires gastrectomy. Hour-glass stomach requires a resection of the contracted portion. Mayo, Moynihan, Robson, Gould and many others have recently published their results and the details of the various operations in monographs and journal articles.

Cancer of the large intestine is curable by operation. The type of tumor is usually not very malignant. Bloodgood[27] discusses the tumors of the rectum and sigmoid and their removal by the combined abdominal and sacral routes.

GALL-BLADDER.—The indications for cholecystostomy and cholecystectomy are now rather well defined. Cholecystostomy is the operation for acute cholecystitis with or without calculi, and is the operation of choice whenever the bile ducts are to be drained. Cholecystectomy is the operation for cancer and for chronic inflammation with a small shrunken gall-bladder, especially one full of stones.

Graham[28] gives as the characteristic symptoms of early gall-bladder disease sudden severe pain at the stomach region, or right costal area, with or without radiation, always of short duration, occasional vomiting, with abrupt disappearance of symptoms and immediately normal health, which continues in the interval between attacks.

Mayo[29] calls attention to the slight danger of operation in this early stage (one-half per cent. in 500) as compared with the higher mortality late in the disease.

NERVE SUTURE AND RESTORATION OF FUNCTION.—Nerves of the lower neuron are the only ones in which regeneration is possible after section and suture. The nerve itself should not be sutured, but the divided ends should be brought into apposition by suture if adjoining tissues, and every precaution be taken to prevent the formation of scar tissue between the ends. J. B. Murphy at the Boston meeting of the American Medical Association showed that the tendency of the fragments of a divided nerve is to join one another, the ends almost making purposeful movements in order to reach each other, and that the greatest obstacle to union is the interposition of dense scar tissue.

The length of time required for restoration of function after nerve suture is extremely variable. Sensory return is more certain and always much earlier than motor restoration. In one recorded case sensation was re-established six hours after suture.

BRAIN TUMORS[30] require surgical treatment as soon as they are diagnosed, in some cases without waiting for definite localization. Only certain tumors can be removed completely and cured by operation, but even in the incurable tumors the relief of headache, blindness and other distressing symptoms justify operation. The results of the decompression operation are so brilliant that no brain tumor should be allowed to go without operation. To obtain good palliative effect the operation must be performed before the development of marked secondary structural changes—for example, before complete optic atrophy. Operation for intercranial tumors, especially those of the pons and cerebellum, require the most gentle manipulations and avoidance of every unnecessary traumatism. Instruments like the Maisland[31] saw have been designed to make the opening of the skull rapid and as free as possible from vibration.

THYROID.—Kocher's[32] extensive experience in diseases of the

thyroid gives authority to his last report. In his judgment, operative removal of part of the hypertrophied gland is the best treatment for exophthalmic goiter. He uses infiltration anesthesia, and recommends preliminary rest in bed as preparation for operation in the cases showing pronounced nervous and circulatory symptoms. He cautions against prolonged delay before operation because of the development of goiter heart, the presence of which condition adds much to the gravity of the operation.

Various sera have been recommended for the cure of exophthalmic goiter. Thyroidictin, the dried blood of thyroidectomized animals, has not been a success. More recently a specific serum has been prepared and used with some success.[33] This would indicate that in exophthalmic goiter we have more than the simple increase of thyroid material as indicated by the epithelial increase shown in the pathological picture exophthalmic hypertrophy, and have some alteration of the chemical composition of the material.

GENITO-URINARY SURGERY — PROSTATECTOMY. — The best route for removal of the prostate should probably be determined by each operator in each individual case. For most cases the perineal route, doing Young's conservative operation, is the method of choice, but there will arise cases, especially when the hypertrophy is greatest in the middle lobe, where the subrapubic operation gives best results.

TUBERCULOSIS OF THE KIDNEY.—Walker[34] has published an exhaustive report on the subject. A. D. Bevan[1] calls attention to the curability of tuberculosis of the kidney by excision in the early stage and the consequent necessity for definite diagnosis in this stage. Bevan discussed the symptoms, and mentions as confusing conditions pyelitis, pyelonephritis, stone, neoplasm, essential kidney hemorrhage, and polycystic degeneration of the kidney. For differential diagnosis he makes use of (1) Careful history and physical examination; (2) Several *x*-ray examinations, showing differentiation of the structures, to exclude stone; (3) Examination of the urine for tubercle bacilli; (4) Cystoscopic examination of the bladder; (5) Cystoscopic examination of the blood. To this list we would add injection of diagnostic tuberculin. Bevan removes the kidney through a lumbar incision and ligates the ureter separately from the vessels, cauterizing the stump with phenol. He considers removal of the ureter unnecessary.

ANESTHESIA.—Accumulated experience proves ether administered by the open drop method to be the best and safest anesthetic. Preliminary nitrous oxide is useful to save the patient the discomforts of the first stage.

Acid intoxication[23] seems to play a part in the bad effects of anesthetics, and it has been suggested that transfusion of alkaline solution be employed to overcome the condition.

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SOME RECENT ADVANCES IN MEDICINE.

By Dr. Louis Hamman.

It is not my object to give a general picture of all the advances that have been made in medicine during the past year, nor yet to give in detail the advance in any one department. I shall merely choose a few of the most notable productions, outline their contents, and point to their scope and importance. Each of you will be able to supply from your own memory many unavoidable omissions.

In a field which is being so thoroughly worked as is tuberculosis one can always find in the tremendous output of literature many valuable contributions, but because the field has been so thoroughly worked it is all the harder to produce something of permanent value, something that is new and represents a definite step forward. Of particular interest is the work that has been carried on in the laboratories of Behring, of Koch, and of Wright.

We are still very much in the dark as to just what Behring is doing. We have nothing to go by but his sensational announcement made at the recent Tuberculosis Congress and the very abstruse, impalpable remarks which accompany it. There is an entire absence of detail and of the description of methods, and even the underlying principles are touched only in the vaguest manner. Still, an announcement from such a source is worthy of every consideration. What Behring claims to have found I put practically in his own words. In the course of the past two years he has become convinced of the existence of a healing principle which is entirely different from the antitoxic principle described by him over 15 years ago. This healing principle plays the important *rôle* in the immunizing action of his bovovaccine. It depends upon the permeation of the living body cells by a definite component of the living tubercle bacillus, the so-called T. C. In the living animal cell this T. C. undergoes a marked change, and in this intracellular metamorphosed condition is the true curative agent which Behring calls the T. X., because he is not certain that it is a ponderable substance. This T. C. has various and remarkable properties. It is the form-producing, the assimilating, the absorbing power—in a word, the living principle of the bacillus. It has besides special fermentative and catalytic properties which it retains even within the living cell. Indeed, its derivative T. X. is supposed to possess to a certain degree independent existence, and its union with the cell to represent a true symbiosis. T. C. is, on the one hand, the cause of the tuberculin reaction, and, on the other, the cause of the curative cellular reaction.

Being opposed to using in man living tubercle bacilli capable of reproduction, Behring depends upon isolating T. C. from the bacilli in vitro. T. C. is not capable of reproduction or increase, but, in spite of this, can, by successive changes into T. X., be made to far exceed living tubercle bacilli in its power to protect and to

heal. In this manner he says he has changed the immunity from active to passive, but just how this is is certainly not apparent. In the preparation of T. C. it is freed from substances which hinder its action. These substances are divided into three groups—one soluble in water, a second in solutions of neutral salts, and a third in alcohol, ether, chloroform, etc. What is left he calls the "rest bacillus," which, when ground up and injected subcutaneously in animals, unites with certain cells from the keim centers of lymph glands. Simultaneously as these cells transform the T. C. the immunity of the organism becomes established. This is very briefly put, but is all that Behring tells us. Each one may conclude for himself just how plain the matter is to him. No practical results are as yet at hand to guide our judgment. Behring has promised us a book where the matter will be fully explained and all obscure points made clear, and we await its arrival with impatience.

The work of Koch and his assistants upon the immunity of cattle to tuberculosis is most interesting, thoroughly convincing, and highly suggestive. It is a question with which he has been engaged for many years, the suggestions as to methods coming from earlier work, which he believes establishes an essential difference between the human and bovine tubercle bacillus. This is a difference which he again emphasizes, and, indeed, the principle it involves he believes is at the bottom of the success in this series of experiments. As will be seen, he is now able by the injection of human tubercle bacilli to protect calves absolutely and certainly against the fatal effects of injections of virulent bovine tubercle bacilli. He admits that as yet his method is a laboratory method and extended trial is necessary before it can be conceded general and practical applicability. In the face of repeated and persistent failure, in spite of every variation of experiment, such results were only a few years ago looked upon as impossible attainments.

It would be too much to attempt to outline the numerous efforts which have previously been made to establish such an immunity. Antitoxic and antibacterial serums had been used and nearly every variation of passive immunity attempted. Only a small measure of success attended the work of De Schweinitz, of Trudeau, of McFadyean, of Pearson, and Galliland.

The only important experiments previous to Koch's article where living human tubercle bacilli are used to immunize cattle is the work of Behring and his assistants. Behring's observations were so encouraging that he has selected a special strain of human tubercle bacillus which he recommends injecting on a large scale in young calves to prevent the future development of tuberculosis, and thus gradually to produce a tuberculosis-free herd. Koch criticises both the work and the reports of Behring. He emphasizes particularly that they worked with cultures of unknown virulence, that control animals often withstood the injections, and that autopsies were frequently omitted.

In order to obtain unbiased evidence Behring sent 10 of his immunized calves to experienced investigators for testing. Koch

reviews the histories of these animals in detail. He comments that, to begin with, they were not immunized strictly according to v. Behring's instructions for practice. In one animal the immunity entirely miscarried. The remaining nine were killed at the end of from two and one-half to three months after the fatal dose of bovine tubercle bacilli, and all showed some evidence of a tuberculous infection, although the lesions were for the most part very slight.

On account of their importance I cannot refrain from giving in some detail the methods and results of Koch's experiments. The method finally used was this: A large number of cultures were made from human tuberculous lesions and grown on glycerine agar and glycerine bouillon. When from four to six weeks old they are dried, weighed, and suspended in normal salt solution. Injections are made into the jugular vein. On the first injection from 1 to 2 cg. of tubercle bacilli are given; on the second 5 cg. An interval of from one to two months separated the two. The first injection was followed by a rise in temperature and loss in weight; the second by slight rise of temperature, but no constitutional effects. The test injection consisted of 2 cg. of cattle tubercle bacilli from a strain which was frequently tested and caused death in normal animals in from 20 to 30 days.

The experiments on the first lot of calves brought out these results, viz., that those receiving 2 mg. of human tubercle bacilli showed a richer and more rapid production of protective substances than those receiving only 1 mg., and secondly, that the immunity develops slowly and does not reach its height until some months after the second protective inoculation; so that of six calves receiving their test injection of virulent tubercle bacilli 40 days after the second protective inoculation four showed at autopsy evidence of tuberculosis, while of 12 calves receiving the test inoculations three months after the last protective dose all remained perfectly well, and of seven killed at the end of a year only two showed insignificant areas of healed tuberculosis. Three other calves received 1, 2, and 3 cg. of human tubercle bacilli, respectively, and 108 days later the usual fatal dose of bovine tubercle bacilli. The animals remained well, and when killed after from 117 to 127 days showed absolutely no tuberculosis. Such brilliant results in animals lead us to hope that some similar vaccination may be found efficacious in man. Of course, there is only limited opportunity for experiment. Klemperer has inoculated himself with cattle tubercle bacilli, and no bad results have followed.

For several years Wright and his coworkers have been engaged in some most interesting serum work which in the past two years has been applied in a practical manner to the study and treatment of tuberculosis. They have been able to show that quite distinct from the lysins, the agglutinins, and the antitoxins there is another substance present in the serum which prepares foreign bodies for ingestion by the leucocytes. This substance they call opsonins, from the Greek word opsono, to prepare. Its presence is easily

demonstrable. If we make a mixture of a bacterial emulsion, of normal salt solution and of a suspension of leucocytes, incubate the mixture for 15 minutes and then place it upon a slide and stain, we find that the organisms and the leucocytes remain perfectly separate. If, on the other hand, we replace the normal salt solution by serum, so that we have a mixture of bacteria, serum and leucocytes, incubate this mixture and then spread and stain it, we find that most of the bacteria are then enclosed within the bodies of the leucocytes. Evidently the presence of the serum is necessary before phagocytosis can begin. By simple variations of the above experiments it has been shown that this action of the serum is upon the bacteria, and not upon the leucocyte, and that although the blood of different individuals varies considerably in its phagocytic power, this difference depends upon the amount of opsonin in the serum, and the leucocyte is an entirely neutral factor. Wright has devised a method of estimating the amount of opsonin in a given specimen of serum, and although the accuracy of the method has been questioned, he claims for it constant and precise results even within narrow limits. According to Wright's views on immunity, there are two forms of bacterial infection:

(a) Bacterial infection where the machinery of immunization is inactive. This class corresponds to strictly localized infections which progress very slowly and may last a lifetime. In them the patient's resistance as measured by the opsonic index scarcely varies from day to day and is nearly always below normal. The machinery of immunization must be set in action by artificial vaccination, a process which occurs naturally in the second group.

(b) In this group the machinery of immunization is stimulated and the opsonic index varies rapidly from far below to far above the normal, the variation depending upon a varying discharge of bacteria or their products into the circulation. To it belong the acute infectious diseases which end rapidly in death or recovery.

Tuberculosis, particularly certain skin and gland and bone cases, is a classical example of the first class. For years attempts have been made to produce an immunity by administering tubercle bacilli or their products. Wright thinks that much of our failure has been due to an improper use of these substances. In his own work he uses Koch's T. R. or new tuberculin, which is a ground-up bacillus emulsion. The train of events which follow an inoculation are these: After receiving an injection the resistance as measured by the opsonic power of the serum abruptly falls, this negative phase being followed by a positive phase, when the opsonic index rapidly rises to a point far above normal. From this height there is again a rather abrupt drop, and then a slow and gradual decline to the base line, or in some instances the opsonic power remains for a long period at a point a little above its position before the injection. If the inoculation be repeated during the negative phase, there is a cumulative action, so that the resistance is driven down and the positive phase is curtailed or aborted. No satisfactory cumulative positive influence can be produced by in-

jecting while the opsonic curve is rising. Wright believes it is not necessary to produce constitutional disturbances in order to set the immunization machinery in action, and that the capacity of the organism for immunizing response is not unlimited, but that the apparatus is easily stimulated and easily fatigued, and we must guard with great care the demands we make upon it. He believes he obtains maximal immunizing responses from doses of tuberculin corresponding to from 1-1000 to 1-600 mg. of tubercle bacillus powder. If the negative phase is very marked and tends to increase after each injection, Wright thinks too large a dose is being given; whereas if the negative reaction becomes less intense after each injection he thinks the patient is making good progress. A second inoculation is undertaken only after the effects of the first have worn off. In cases of purely localized tuberculosis it is of importance to use various local procedures in order to flush the affected area with the highly opsonized serum. In this lies the virtue of poultices, rubifacients, and *x*-ray and Finsen-ray exposures. The report of Bulloch is in this connection most suggestive. Of a large number of lupus cases being treated with the Finsen rays he found that those who were doing well possessed a high opsonic index, while those who were not improving had a very low opsonic index. I have not time to detail the results Wright and others have obtained by this method of treatment, but some of their reports of cases are indeed very encouraging.

Where we depend upon a single symptom for our classification and description of a disease without knowledge of its cause, the more we attempt to make of it a definite entity, the more artificial and uncertain our description becomes. All writers demand as the essential feature of diabetes insipidus that polyuria be the primary symptom, but all recognize how difficult it is in certain given cases to decide whether or not it is the primary condition. Whether the polyuria or the polydypsia is the essential factor in the disease is still discussed. There are probably both varieties, some of the reported cases depending upon hysterical conditions and cured by suggestion being no doubt primarily polydypsias. If the claims frequently made that in diabetes insipidus there is a continuous increase in the solids excreted were true, the disease must be classed in the disorders of metabolism, but such claims have been successfully contraverted. It is still disputed whether the diabetes insipidus patient retains water longer than a normal person or whether he displays a tachyuria, so that this symptom is not a crucial test. The whole question seems to be remarkably simplified by the researches of Meyer. He has shown that the essential lesion in these cases is an inability to secrete a concentrated urine. The concentration remains uniform, and in order to accommodate changes in the output of solids the amount of fluid or the dilution is varied. The amount of urine will depend directly upon the amount of nitrogenous food and sodium chloride taken in. These features are very strikingly brought out in the cases Meyer reports. The first patient, a typical case of diabetes insipidus, was passing

on admission from 12 to 13 liters of urine in 24 hours. Upon a rigid diet from which nitrogenous food is almost entirely excluded the amount of urine fell at once to 7600 c. c. and on the second day to 5900. Small quantities of milk and meat added to the diet brought the amount of urine at once up to 8100 c. c., and upon such a restricted diet it varied from 7 to 10 liters, but never went as high as on admission. After having determined by a number of other experiments the remarkable relation between the amount of urine and the character of the food the patient was again placed upon a proteid-free diet. After a few days 20 grams of sodium chloride was administered, and the amount of urine rose at once to 11,250 c. c., falling again on the following to 6600 c. c. The influence of the administration of 150 grams of meat was equally striking, although the amount of urine did not rise quite as high as after the salt. The special feature in all of these experiments is that while there was such a marked variation in the amount of urine, the concentration as measured by the freezing point remained practically uniform throughout. This concentration is very low—the urine is markedly hypoisotonic and dissolves the patient's red-blood corpuscles—but for the 24 hours the molecules and ions excreted equal the normal amount. On another patient the effects of the administration of 20 grams of sodium phosphate was tried, and although there was a marked increase in the amount of phosphate excreted the amount of urine and the molecular concentration remained practically constant, there being a sodium-chloride retention to accommodate the increased output of phosphate.

Other points of interest, but of less importance, are illustrated in further cases, but the gist of the article—a very long one—is as we have stated, that the fundamental symptom in diabetes insipidus is an inability to secrete a concentrated urine, the tremendous amounts of urine passed being but the necessary consequent of this insufficiency. There are, of course, many other conditions in which polyuria occurs, and it is of the greatest importance to know how such cases react to salt and nitrogenous food. In the normal individual it is accommodated principally by changes in concentration and only secondarily by increase in amount. This is likewise true, as Meyer shows, in cases of hysterical polyuria, where the symptom depends upon polydypsia. In chronic interstitial nephritis the power to secrete a highly concentrated urine is damaged, but only relatively, and such cases show a wide range of variation in quantity and concentration without definite relation to the diet.

Work of the past few years has very considerably modified our knowledge of the anatomy, the physiology, and the pathology of the heart. Gaskel in 1893 discovered in cold-blooded animals a band of muscle fibers uniting the auricle and ventricle, and in 1893 His, whose name the bundle now bears, published his thorough studies of the band in man. Retzer and Braennig in 1904 published the results of their exhaustive observations, and in all essential details corroborated the work of His. The importance—nay, the necessity—of the presence of such connected muscle fibers, if

we are to accept the plausible myogenic theory of the cardiac impulse, is apparent. It will be remembered, too, that His showed that the heart of the embryo beats rhythmically some time before the appearance of nerve fibers. This important group of muscle cells His describes as arising in the posterior wall of the right auricle near the septum auriculorum, and piercing the auriculo-ventricular fibrous septum, runs forward along the interventricular septum, and dividing into two limbs becomes fused with the surrounding ordinary muscle cells. All observers have noted that the fibers of this connecting band are different in structure from the other cardiac fibers. They are more spindle-shaped, richer in protoplasm, and lack the abundant striation of the ordinary heart muscle. Kent gives them a position between smooth and striped muscle. Having the importance of this bundle in mind, one readily appreciates the significance of the histological studies of Tawara, published the past winter from Aschoff's laboratory. He amplifies and corrects the observations of His. In man, as well as in sheep and numerous other animals, he shows that the ventricles are lined by a rich network of Purkinje fibers, from which branches run into the walls. The existence of such fibers in various animals has been abundantly confirmed since their observation by Purkinje, but their existence in man has been discussed. Tawara finds them definitely and abundantly present, but they are less sharply defined from the surrounding muscle cells than in some other animals. No adequate explanation of their purpose had been advanced until Tawara brings them so interestingly in connection with the auriculo-ventricular bundle of His. According to his description, this bundle does not, as was assumed, fuse with the ordinary muscle cells shortly after piercing the auriculo-ventricular septum, but is continued as a perfectly separate and distinct system of fibers, which branch but nowhere unite with the regular heart-muscle cells, and finally terminate in the Purkinje fibers. Through these terminal fibers alone is it brought in contact with the surrounding muscle cells. This system is remarkably similar in all animals, and taking the sheep's heart as a type a short description is as follows:

Just above the auriculo-ventricular septum the system forms a very complicated nodule of muscular network. From this nodule one bundle of fibers runs backward to the front region of the sinus coroncoius and comes in contact here with the ordinary auricular fibers. Another bundle runs forward, pierces the auriculo-ventricular septum, and enters the interventricular septum. Shortly after entering the septum the bundle divides into two parts. The left limb rapidly becomes subendocardial and then runs as a closed bundle surrounded by connective tissue perpendicularly downwards. Only after it has traversed a long distance does it, at the base of the papillary muscles, divide into a rootlike network, branches of which extend upward over the base of the heart. The second branch runs to the right, but does not become definitely subendocardial until the base of the papillary muscle is reached, where it

divides into a great number of branches which spread out all over the inner surface of the ventricle, some piercing into its substance. The different structure of these fibers running as a separate and closed system through the cardiac wall suggests at once that they have a function different from that of the ordinary muscle cells. This function, Tawara urges with much plausibility, is to conduct and perhaps even to originate the cardiac impulse. Given the presence of such an anatomical arrangement of fibers, how much more satisfactorily one can understand the mechanism of the ventricular contraction! Herring's experiments have shown that the impulse wave reaches all parts of the ventricle at approximately one time—the papillary muscles even a little earlier than the base. Such an occurrence would be impossible if, as according to the older view, the impulse was conveyed through the bundle of His to the base of the ventricle and was propagated from this point in a wave to the apex. Both embryologically and histologically the ventricular wall is divided into groups of muscles—a posterior which attends to the closure of the auriculo-ventricular orifice and an anterior which has to do with the expulsion of the blood. If the impulse was transmitted directly from the auricle to the ventricle through the His bundle, the expelling portion of the ventricle would be stimulated long before the papillary muscles. How simply Tawara's observations set these difficulties to right!

The work upon the physiology of this auriculo-ventricular band of muscle fibers is as important and perhaps even more interesting than the anatomical work. Erlanger, working in Dr. Howell's laboratory, has contrived an apparatus which can be hooked about this bundle, and by means of a thumbscrew a varying amount of pressure exerted upon it at will. As slight pressure is made, the auricle continues to beat at its usual rate, but when sufficient pressure is made the ventricular contractions decrease in frequency. This decrease in the ventricular contractions bears, however, a definite relation to the frequency of the auricular beat, the relation at this stage being exactly as 2 is to 1, or, in other words, the ventricle contracts only after every second auricular contraction. If the pressure is increased, the rhythm becomes 3 to 1, and at times 4 to 1, and when further increased the ventricular beat becomes still slower and now takes up a rhythm entirely independent of the auricular beats. Such a phenomenon as this can be produced experimentally only when the bundle of His is compressed. In all the unsuccessful experiments it was found upon microscopical examination that this bundle was not included in the bite taken by the clamp in all successful ones that it was. As Erlanger was unable to find any nerve fibers accompanying this bundle, he assumes that conduction is through the muscle cells. This phenomenon is spoken of as heart-block, when every second or every third auricular contraction reaches through to the ventricle as partial block when the conduction path is entirely cut off and the two chambers beat independently as complete block. It is of importance to note that, as a rule, when the clamp is tightened, particu-

larly when rapidly tightened, enough to produce complete block the ventricle for a varying period of time stands perfectly still and then begins slowly to take up its own inherent rhythm—a rhythm very much slower than the auricular rate. The result of these experiments, together with the interesting observations of His, Erlanger and others, upon man make perfectly clear to us the events which occur in that most curious and heretofore obscure clinical picture, the Stokes-Adams syndrome. Tracings taken synchronously of the ventricle and of the auricle show that every grade of heart-block occurs—a 2 to 1, a 3 to 1, etc., rhythm, and finally complete block where the ventricle beats independently of the auricle. This is the explanation of the remarkably slow pulse. The syncopal attacks occur when the ventricular beats become markedly reduced or when the ventricle temporarily stops beating upon the establishment of complete block just as it does in the animal experiments. Such syncopal attacks are always associated with a marked increase in the auricular rate, an increase which, by suddenly producing complete block, in all probability precipitates the attack. Syncopal attacks may, however, occur when there is only partial block. We have on record now a number of autopsies upon such cases where a lesion of the His band is plainly demonstrated. I may refer to a striking instance reported by Stengel.

As was said in speaking of diabetes insipidus, there must be confusion where a single symptom is made the basis of a clinical picture. This is equally true of tachycardia. There is, however, a fairly well-defined clinical picture in which the attacks of rapid heart-action occur at irregular intervals, the heart showing no abnormal symptoms or signs between the attacks—the paroxysmal tachycardias. Everyone is familiar with this most remarkable condition in which, with a pulse-rate of over 200, the patient may feel fairly comfortable and be able to undertake a most astonishing amount of muscular exertion. It is looked upon generally as a neurosis, but no satisfactory explanation of its mechanism has been advanced. An interesting observation has been made by Hoffmann. In taking pulse tracings at the beginning of an attack he finds that the heart-rate from normal rises suddenly to just double this rate, and then very rapidly to double the first rise. For instance, a heart beating 60 to the minute goes suddenly to 120 and then suddenly to 240, so that the first rise is just twice and the second just four times as rapid as the original normal pulse. At the termination of an attack a similar succession downward is observed. Such a proportionate halving and doubling of the contraction rate of the cardiac muscle is not without analogy in physiological experiments. Kries has shown that by warming and cooling different parts of the heart the rate of contraction of the warmed portion is always a multiple of 2 of the rate of the cooled part. Thus it may be 2, 4, 8, 16 times as rapid, but never 3, 5 or 7,

etc. Gradual changes in temperature were always associated with sudden changes in rate, *n* beats going at once to *n* 2 beats and then to *n* 4 beats, etc. Engelman also has noticed in pieces of resected vein from the frog's heart that sudden single stimuli thrown in at the end of diastole will cause the muscle to make a number of rapidly succeeding contractions, the new rate being just double the original, while the return to the normal rate is abrupt, not gradual as in stimulation of the accelerator nerves. In order to bring his clinical observations in accord with these experimental facts Hoffmann makes some theoretical suggestions. He assumes that in the veins above the point where the normal cardiac impulse has its origin there are muscle fibers which generate a rhythm faster than the normal heart-rate. If these, for instance, generate a 4 *n* rhythm and the neighboring fibers are able to respond to only every second stimulus, these will take up a 2 *n* rhythm, and the point where the normal cardiac contraction has its origin, able to answer only every other impulse, will take up a 1 *n* rhythm. This would represent normal conditions, and some change occurring in the irritability at these points which would allow every impulse to carry through instead of every second one would establish a doubled or quadrupled heart-rate.

It would be almost impossible to speak of recent advances in medicine without saying a word about the voluminous literature that the past 19 months have contributed to the etiology of syphilis. Scarcely a number of any of the current medical journals, especially of the German journals, arrives without having some reference to the subject. We have, too, the opinions of such authorities as Metschnikow and Roux and Flexner. Schaudinn on May 3, 1905, presented his preliminary report of the finding of spirochete pallidum in primary and secondary lesions, and suggested their importance as etiological factors in the disease. The flood of reports which has followed has for the most part confirmed his position, and the organism has been found with great regularity in practically all lesions of acquired and congenital syphilis and constantly missed in various non-syphilitic diseases. Metschnikow and Roux and Kraus and Prautschoff have demonstrated them in the lesions of experimental syphilis in monkeys, and they are present when the disease is conveyed from monkey to monkey as well as from man to monkey. Metschnikow writes that "taking everything into consideration, the evidence points toward syphilis being a chronic spiralosis caused by the spirochete of Schaudinn." In his Carpenter Lecture Flexner reviews the literature up to date and gives an account of his own investigations. He gives the impression that the spirochete pallida plays a very important *rôle* in the etiology of syphilis, but says: "I am still far from having myself a conviction of its position as immediate cause of that disease, for the establishment of which causal relation more stringent proof than yet produced will be required."

MORBIFIC AND INFECTIOUS MILK.

By George M. Kober, M.D.,

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[*Continued from November Number.*]

3. *Milk May Acquire Injurious Properties While the Animals Are Being Treated With Strong Remedial Agents Which Are Excreted in the Milk.*—This is true of the following substances: Arsenic, lead, iodine, copper, mercury, tartar emetic, carbolic acid, opium and morphine, colchicum, euphorbium, salicylic acid, atropine, veratrum, strychnine, croton oil, aloes, senna, and turpentine. The remedy is obvious; animals which are being treated with medicaments for any cause cannot produce a pure or sound milk, and should be excluded.

4. *Milk Itself May Be Morbific as the Product of a Diseased Animal*—(a) *Inflammatory Conditions of the Udder and Teats (Garget).*—There is an abundance of evidence to show that cows frequently suffer from various degrees of mammitis and other septic processes of this secreting organ. It is obvious that the character and composition of the milk in such instances are changed, and, apart from the disgusting admixture of pus, it may prove dangerous by the transmission of septic germs, such as the various forms of streptococci and staphylococci, which have actually been demonstrated in such milk by Kruger, Nocard and Mollereau, Kit, Bang, and others, and, besides, we know from Löfflet's experiments that milk also offers a suitable culture medium for such germs.

In 1869 Dr. J. Fagan described a case of pseudo-membranous stomatitis produced by the milk of a cow with inflamed udder. On inquiry Dr. Fagan was informed by the mother that for some time past she had noticed a sediment of a dirty appearance in the bottom of the vessel. Microscopical examination of this sediment revealed corpuscles of both pus and blood, and on making further inquiry it was found that the cow had suffered from inflammation of the udder, which had at the same time formed an abscess. Dr. E. F. Brush in 1882 called attention in the *New York Medical Record* to the dangers of such milk.

As a matter of fact many of the epidemics of scarlet fever, diphtheria, and follicular tonsillitis in Great Britain have been attributed to a milk supply from animals suffering with local affections of the teats and udder. Thus, for instance, in November and December, 1885, an epidemic appeared at Marylebone, St. Pancras, and Hamstead which Mr. W. H. Power, the sanitary inspector, traced to a particular milk farm at Hendon, but could discover no sign of scarlet fever at or near the dairy. Upon examination of the cows some of them were suffering from an ulcerative disease of the teats and udders, and from various other circumstances he

inclined to the belief of the bovine origin of this disease. Dr. Klein found certain micrococci in the diseased tissues and organs of these cows and in the discharge from their teats, and succeeded in growing these in a variety of culture media, and declared that we need no longer hesitate to call it the "micrococcus scarlatinae." Professor Crookshank, Brown, and others opposed Klein's contention, and the subject engendered quite a bitter controversy among English pathologists.

In studying this subject, and because of the fact that toxins may and do produce a scarlatinous exanthem, the speaker felt warranted in declaring in 1895 that in all the epidemics of scarlet fever and diphtheria which were attributed to milk from cows suffering from some inflammatory lesions of the udder or from puerperal fever we have typical instances of a streptococcus or staphylococcus infection, and it will often be impossible to differentiate clinically such attacks from true diphtheria and scarlet fever.

In August, 1897, Grey Edwards in the *British Medical Journal,* Vol. II, pp. 340, 341, published cases of follicular tonsillitis in which the staphylococcus pyogenes aureus and albus and the streptococcus pyogenes (short form) were not only found by Severn, director of a London pathological laboratory, in the suspected milk of a particular diseased cow, but also in the sweepings (culture) from the throat of the patient. There is *no* proof that there is a disease in the cow which is communicable as scarlet fever or diphtheria to man, but when we consider the almost total absence of scarlet fever in countries like Japan, where milk is seldom used except as a medicine, the question should not be regarded as definitely disposed of, but is one that merits the most searching investigation by pathologists and bacteriologists of both medical and veterinary schools.

(b) *Fever, Especially Puerperal and Other Septic Fevers.*—The milk of animals suffering from febrile diseases is unfit for use. This is especially true of the puerperal and other septic fevers, in which Karlinski, Escherich, and Adametz have demonstrated the presence of the micrococcus pyogenes aureus in milk, the last-named author in a sample which had induced vomiting and diarrhea. There is reason for believing that the germs of septicemia neonatorum are in many instances conveyed in the milk, since Escherich, who examined 13 specimens of milk from mothers suffering from puerperal fever, found the pyogenic germs in 12, and Karlinski not only demonstrated the staphylococci in the milk of the mother, but also in the blood and intestinal contents of the infected infant.

(c) *Gastro-Enteric Diseases.*—It has long been held that the milk of cows suffering from digestive derangements is of an abnormal character, and usually quite watery, of a bitter taste, and generally coagulates within from six to eight hours after milking, with the formation of very little acid, so-called "sweet curdling." When we remember that if nursing mothers indulge freely in fresh fruit and green vegetables their milk is apt to gripe and purge their

infants, we can appreciate how cow's milk, under the above circumstances, may produce mischief.

(d) Professor Gaffky has reported several cases with symptoms of nausea, vomiting, diarrhea, and mental confusion which he traced to the milk of an animal suffering from acute specific enteritis, and demonstrated a characteristic organism in the animal as well as in his human patients. He also referred to Professor Husemann's report of an epidemic of gastro-enteritis which prevailed in 1888 at Christiania, and which within three weeks affected over 6000 persons, but sparing infants at the breast.

(e) *Foot-and-Mouth Disease* (*Eczema Epizootica*).—The milk from animals suffering from this disease is unfit for use, and many epidemics of stomatitis aphthosa or aphthous fever have been reported.

Mr. E. Hart described an epidemic at Aberdeen which affected about 300 persons with rigors, fever, tonsillar enlargement, and swollen cervical glands. The boys at the reformatory school whence the milk came, receiving only skimmed milk, entirely escaped. The symptoms resembled the outbreak at Dover in 1884, which affected in one week 205 cases, all supplied with milk from one dairy, the cows at one of the farms suffering from foot-and-mouth disease. Baum refers to a number of instances in which the infection was conveyed in the milk.

(f) *Cowpox*.—Dr. J. M. Cotterill read before the Medical and Chirurgical Society of Edinburgh a paper in which he gave the history of two epidemics of sore throat which occurred at Fettes College. The first began in October, 1886, and comprised 50 cases; the second occurred a year later and comprised 84 cases. The symptoms of the disease were as follows: When first seen the patients (all boys) were generally out of sorts, complaining of headache, want of appetite, and lassitude; occasionally there was sickness of nose-bleeding; in most cases a furred tongue, foul breath, and other symptoms of gastric disturbances were present. The tonsils and posterior wall of the pharynx were bright red, with considerable swelling of the mucous membrane. The uvala and soft palate were also congested, but in no case was there any membranous deposit on these parts. Upon the tonsils and walls of the pharynx, however, there were always follicular exudations, and sometimes a considerable patch of deposit on the tonsils, which were often much swollen and deeply fissured. These patches would always be easily removed. Albuminuria was very frequent. The disease usually lasted about seven days in its acute stage. A peculiar symptom was the implication of the uppermost of the chain of lymphatic glands behind the sterno-mastoid. This always happened several days after convalescence had commenced. There would be a large brawny swelling in the neck, which in every case subsided slowly without suppuration. Meantime the cows had been inspected by Professor Williams, and two of them had been certified to be suffering from variola vaccina in its later stages.

(g) *Anthrax*.—The milk of animals infected with anthrax is

unfit for use, because Feser, Manotzkoff, Nocard, and others have actually demonstrated the bacillus anthracis in the milk, and if infection has not more frequently taken place it is because the secretion is arrested in the very first stage of the disease. Heusinger, however, refers to an instance which occurred in the daughter of a plantation-owner, in 1795, at Barbadoes who drank one morning most of the milk from a cow suffering with anthrax. Four days afterwards the child presented symptoms of the disease. A carbuncle also appeared on the left arm.

(h) It is claimed that the milk of animals suffering from *pleuro-pneumonia* may convey the germs, and Lecuyer, Schuppel, Jurgensen, and others have actually reported a number of transmissions, but the question is by no means settled.

(i) *Rabies and Tetanus.*—In olden times the consumption of milk from rabid cows was regarded as dangerous, and Gaber refers to a few instances of transmission of the disease in human milk, which all date back to the last century. Feeding experiments have proved in the majority of instances negative, and Hertwig, Bollinger, and others concluded that there was no danger from this source. Since Pasteur pointed out, however, that the mammary glands were among the organs selected for the disposition of the virus there has been a renewed interest, and Nocard has experimentally proven that the virus may be conveyed in the milk. It is not improbable that the milk of animals suffering from tetanus contains some of the specific bacterial products, but it seems almost inconceivable that animals suffering from these affections should be milked at all.

(j) *Tuberculosis.*—While it is possible for milk to be contaminated with the sputum of tuberculous matter of consumptives, we are considering here the transmission of the germs from the animal to man through the medium of milk. According to Dr. Salmon it has been proved that in some countries from 40 to 50 per cent. of all cows have tuberculosis. In the United States the proportion is very much less, being probably not over 5 per cent. in our worst affected States. Yet there are many herds here as badly affected as the worst herds of Europe. These are suggestive statements, especially as, in the opinion of veterinarians of the present day, tuberculosis is increasing among swine, largely as a result of *consuming tuberculous milk.* According to Salmon, during the year 1900, of 23,336,884 hogs slaughtered under federal inspection, 5444 were sufficiently affected to cause condemnation of some part of the carcass.

Casper, in his "Characteristics of French Medicine," etc., published in 1822, on page 124, writes:

"Scrofula is not more rare in Paris than elsewhere, and baffles also here the efforts of physicians. La Billardiere declares that the majority of milch cows in Paris perish from nodular consumption, and that their milk contains seven times more of lime phosphate than common. It is possible that there is a connection between this phenomenon and the many tuberculous diseases among the chil-

dren in Paris. We cannot pursue here this investigation, where the mere fact suffices that in Paris, especially in the hospitals for foundlings and for children, like the St. Louis and others, the sequela and effects of scrofula can be seen in astonishing numbers."

The possibility of the presence of tubercle bacilli in the milk of animals was pointed out first by Virchow and by Koch as early as 1882, and subsequently the bacilli have been demonstrated by Bang, Johne, Bollinger, Ernst, Woodhead, and many others in the milk of animals, in which the udder was also the seat of lesion, and for some time it was doubted whether the milk from a cow is virulent unless the udder is the seat of the tuberculous deposits. In 1893 Theobald Smith, from a number of experimental observations, finds that tubercle bacilli may be present in the milk of tuberculous cows when the udder, so far as the naked eye could tell, contained no foci of disease, and the results presented by Ernst in his report on the infectiousness of milk appears fully to justify the conclusion reached by him in 1889 that the milk from cows affected with tuberculosis in any part of the body may contain the virus of the disease. These conclusions are, moreover, supported by the investigations of Adami, Delepine, Stein, Rabinowitch, Kempner, and others. The general results of inoculation experiments would seem to indicate that the infectious qualities are greatest with milk from animals with udder lesions, and next from those affected with general tuberculosis. The feeding experiments of Bang, Bollinger, Klebs, Ernst, Baumgartner, Fisher, Wesner, and others with tuberculous milk proved infectious in about 45 to 50 per cent. of the cases. When we recall the fact that the last three observers were especially impressed with the resulting tuberculous lesions of the intestinal mucosa, mesenteric glands, and liver; when we next consider the comparatively large number of children under five years who perish from primary tuberculous ulceration of the intestines, tuberculous peritonitis, and tabes mesenterica, and the fact that the food of these children consists largely of unboiled milk, the chain of evidence seems well-nigh complete, but has been materially strengthened by a number of clinical cases.

Klencke, in 1846, was the first to write on the infectiousness and transmission of scrofula by cow's milk. In his book of 90 pages he gives the clinical histories of 16 children who had been fed with the milk of scrofulous and tuberculous cows, and they all point to tuberculosis of either the intestines, glands, skin, or bone. He also describes the condition of the seven suspected cows, and verified the diagnosis of a "scrofulous-tuberculous condition" in four post-mortem examinations of the cows, which demonstrated to his satisfaction "that the same scrofulous lesions may be developed in the cow as are found in the human subject, and that human scrofula and the disease found in the mammalia are identical." The details of these cases are republished by the speaker in the report of the health officer for the District of Columbia in 1895.

Klencke's contribution to the early literature of this subject may be regarded of special value, as he was one of the first to demon-

strate the infectious nature of tuberculosis by injecting, in 1843, human tuberculous matter into the cervical veins of rabbits, causing pulmonary and hepatic tuberculosis in these animals.

Apart from this evidence, we have considerable statistical material bearing upon the extent of intestinal and abdominal tuberculosis by Heller, Bovaird, and Gottstein. Salmon has analyzed the vital statistics of Massachusetts, and finds *an increase of 36 per cent. in the forms of tuberculosis other than phthisis* in the class *under five years of age,* while there was *a reduction* in the mortality of phthisis at all other ages of about 45 per cent., and the vital statistics of Michigan from 1885 to 1900 show also a tremendous increase during the milk-drinking age. In 1903 the speaker published 86 cases of milk bovine tuberculosis and presented the following conclusions:

1. Tuberculosis may be transmitted to man in milk from tuberculous cows. The danger from this source is real and cannot be measured by the actual number of recorded cases, but should be judged, in part at least, by the inoculation and feeding experiments and the accidental-wound infections which have established the intercommunicability of bovine and human tuberculosis.

2. The degree of danger may also be estimated by the prevalence of bovine tuberculosis and of the forms other than phthisis pulmonalis in man, remembering that the infectious qualities of milk are greatest when the udder is the seat of lesions, and that Gebhardt's experiments have shown that tuberculous milk when diluted with the milk of sound animals in the proportion of 1 to 40 lost its infective power.

3. Further research seems desirable with a view of determining the frequency of primary intestinal and abdominal tuberculosis in all cases which come to autopsy, whether the child perished from tuberculosis or not, and in these autopsies the bacteriological examination should be directed to the existence of the two types of tubercle bacilli originally referred to by Smith, and whether the bovine type predominates in the so-called scrofulous lesions.

4. In the meantime the pathologist has no occasion to reverse his opinion as to the identity of human and bovine tuberculosis, and the sanitarian has no reason to assume that the human subject is immune against infection with the bovine bacilli or is so slightly susceptible as to cause him to relax his efforts in preventive measures.

5. *Milk May Acquire Infective Properties After it Leaves the Udder of the Animal.*—Numerous instances have been observed in which outbreaks of typhoid fever, scarlet fever, and diphtheria, by their sudden and explosive character, affecting families living in streets and localities supplied by the same milkman, naturally pointed to the milk supply as a common cause. Dr. Michael Taylor of Penrith, England, however, was the first physician (in 1857) to point out definitely that cow's milk might serve as the medium of spreading typhoid fever from a dairy where the disease prevailed. In 1867 he also showed that scarlet fever might be dis-

tributed in the same way. In 1877 Mr. Jacob traced a diphtheria epidemic at Sutton to the milk supply, and in 1872 Macnamera traced an outbreak of cholera at Calcutta to an infected dairy. These facts could not fail to sharpen the powers of observation in others, and in consequence similar outbreaks were more frequently reported, so that Mr. E. Hart, the editor of the *British Medical Journal,* was enabled to present to the International Medical Congress, held in London in 1881, the history of 50 outbreaks of typhoid fever, 15 of scarlet fever, and 7 of diphtheria, all traceable to the milk supply. In a similar communication made before the International Medical Congress at Paris in 1900 the writer presented his conclusions, based upon the tabulated histories of 330 outbreaks of infectious diseases spread through the milk supply. These outbreaks consist of 195 epidemics of typhoid fever, 99 epidemics of scarlet fever, and 36 epidemics of diphtheria.

It has been demonstrated by numerous bacteriologists that disease germs may not only survive, but in many instances actually proliferate in the milk, and it is not a difficult matter to point out the many ways by which these germs gain access, especially when some of the employes are also engaged in nursing the sick, or are suffering themselves from some mild infection while continuing their duties, or are convalescent from the disease. It is quite conceivable how animals wading in filth and sewage-polluted water may infect the udder with the germs of typhoid fever and through it the milk. We can also appreciate how infected water may convey the germs by washing the utensils or by deliberate adulterations. Infection may also take place by means of scrubbing brushes, dishcloths, exposure to infected air, and last, but not least, through the agency of flies.

(a) *Typhoid Fever.*—Of the 195 epidemics of typhoid fever tabulated by me there is evidence in 148 of the disease having prevailed at the farm or dairy. In 67 instances the infection probably reached the milk by percolation of the germs into the well water with which the utensils were washed; in 16 of these the intentional dilution with water is a matter of evidence. In three instances the bacillus coli communis and the typhoid germs were demonstrated in the suspected water. In seven instances infection is attributed to the cows wading in sewage-polluted water and pastures. In 24 instances the dairy employes also acted as nurses. In 10 instances the patients while suffering from a mild attack or during the onset of the disease continued their work, and those who are familiar with the personal habits of the average dairy hands will have no difficulty in surmising the manner of direct digital infections. In one instance the milk tins were washed with the same cloth which had been in use among the fever patients. In two instances the dairy employes were connected with the night-soil service, and in another instance the milk had been kept in a closet in the sickroom.

(b) *Scarlet Fever.*—Of the 99 epidemics of scarlet fever the disease prevailed, in 68 instances, either at the dairy or at the milk farm. In six instances persons connected with the dairy either

lodged in or had visited infected houses. In two instances the infection was conveyed by means of infected bottles or milk cans left in scarlet-fever houses. In 17 instances the infection was conveyed by persons connected with the milk business while suffering or recovering from the disease, and in at least 10 instances by persons who had acted as nurses while handling the milk. In three instances the milk had been stored in or close by the sickroom. In one instance the can had been wiped with an infected cloth. In 19 instances the infection was attributed to the disease of the milk cows, such as puerperal fever and inflammation of the udder and teats, but these outbreaks were probably not genuine scarlet fever, but a streptococcus or staphylococcus infection.

(c) *Diphtheria.*—Of the 36 outbreaks of diphtheria tabulated there is evidence that the disease prevailed at the dairy or farm in 13 instances. In three instances the employes continued to handle the milk while suffering themselves from the disease. In 12 instances the disease is attributed directly to the cows having inflammatory conditions of the teats and udders. These instances, however, may be regarded as typical examples of streptococcus and staphylococcus infection, giving rise to a form of follicular tonsilitis or pseudo-diphtheria, often difficult to distinguish clinically from true diphtheria or scarlet fever.

(d) *Cholera.*—Professor Koch, in 1884, first pointed out that milk is a suitable culture medium for cholera spirillae, but the possibility of the virus being transmitted in the milk had been emphasized before. Gaffky, in the report of the Cholera Commission in India, refers to the unsanitary condition of the dairies in India, where the water supply is derived from tanks which are promiscuously used for bathing, laundry, and dairy purposes, and Dr. Cayley refers to the fact and consequent danger that at Katarhatti, a suburb of Calcutta, of 300 families, 70 are engaged in the milk business, all located near one of the notorious water tanks, and that in September, 1872, not less than 16 cholera cases with six deaths occurred among these dairy people. Drs. Macnamera and Simpson have reported limited epidemics directly traced to infected dairies.

It is interesting to note that of the 330 milk-borne epidemics analyzed by me, 243 have been recorded by English authors, 52 by American, 14 by German, 11 by Scandinavian, and 5 each by French and Australian writers. This is probably due to the fact that the English and Americans usually consume raw milk, while on the Continent the milk is rarely used without being boiled.

Control, Management, and Inspection of Dairy Farms.—Sufficient data have been given to indicate the necessity of sanitary control of the milk traffic. Pure natural milk can be secured only at dairies with sanitary buildings, a pure-water supply, healthy, well-fed and well-cared-for cows, a well-equipped and well-kept milkroom, provisions for thoroughly sterilizing all utensils, intelligent people in charge, and cleanly methods throughout. There are a number of persons—thanks to the training received at the various dairy schools—who make an honest effort to place on the

market milk obtained under such conditions, but by far the majority are ignorant or wilfully indifferent to hygienic requirements, and therefore matters of this kind should never be left to the individual, but the principles which ought to be carried out should be embodied in effective laws, and accepted and executed in a practical sense. Honorable men will not object to laws placing dairies, the herds, and the milk market under strict sanitary control, and as many of the most serious dangers are the result of ignorance rather than of intentional negligence, the difficulties will be materially lessened by proper education and trade competition. It is highly desirable that some uniform legislation, preferably a national pure-food law, be enacted to regulate the inspection of dairy farms, etc., for, as it is now, milk consumed in New York city, for example, may be produced in a number of States over which, of course, the local authorities have no jurisdiction.

Sickness Among Milkers and Employes.—All persons engaged in handling the milk should be free from disease. No family ever thinks of employing or keeping a cook afflicted with a communicable disease, and yet not the slightest restriction is placed upon, nor a question asked about, the persons who handle our milk supply, which we know affords an excellent culture medium for disease germs. After the recital of numerous epidemics and milk-borne diseases we need hardly insist upon the necessity of compulsory notification of all infectious diseases, and that the milk should *not* be permitted to leave a farm, dairy, or milk shop during the existence of any of these diseases among the inmates or employes, nor should the latter be permitted to reside in or visit infected premises while engaged in the milk traffic without permission from the health department. The farmer or retailer should, in fact, be prepared by previous instruction to guard the milk supply from these sources of danger and call upon the authorities for an immediate inspection. To prevent great loss incident to these restrictions they may be modified so as to utilize the milk after proper sterilization under the direction of the health department.

There is nothing strained in these requirements, as good and sufficient reasons have been adduced, and by their enforcement we may hope to obtain such a standard of milk as will not only effect a decided reduction in infantile mortality, but will render the dissemination of infectious diseases through the milk supply a matter of history only. Until this is accomplished we should patronize only such dealers as sell "certified milk," or subject the milk in pint bottles to pasteurization at a temperature of 155° F. for 30 minutes, and after cooling keep it on ice. This will not make bad milk good, but it will at least destroy its infectiousness.

In conclusion, let us be fair in this educational campaign to the milk producer. Let us emphasize the fact (and here I speak from personal experience) that ideal milk supplies cannot be attained without increased cost of production, and in the interest of public health and the many helpless babes deprived of their natural food we should be loyal to our American conception of a "square deal."

Society Reports.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD OCTOBER 15, 1906.

Dr. Barker, the newly-elected president, in the chair.

Exhibition of Two Cases of Focal Epilepsy—Dr. Thomas. Case No. 1. Patient a man 38 years of age; occupation, a student and a farmer; family history excellent; personal history also good. At the age of 13 he had pleurisy and diphtheria; otherwise it is negative. His present trouble began in 1896, while walking along a road, with an odd feeling in his head, which felt like "dough looks when rising." At the same time his left leg was jerked up. Since that time he has had recurring attacks similar to the first. In July, 1900, he had three attacks in quick succession, passing into unconsciousness. In January, 1903, head symptoms developed, intense pain passing from one temple to the other and noises in his head like the roaring of the ocean on the shore. These noises would come on in the early part of the day and would cease about midday, giving way to the pains. Before this he had an attack of sudden blindness. The pains passed off, but the eyes became worse. They became a little better later on, but have remained stationary since then. At about the same time his left arm became weak; soon after his left leg became weak, and has remained in about the same condition up to now. Slight attacks kept recurring, but his eyes have given him the most trouble. He came to the dispensary in November, 1905, complaining of nervousness and trouble with his eyes. Examination at that time showed optic atrophy, but his field of vision was not markedly limited. His arms were apparently all right, but there was weakness of the left leg. He was given Fowler's solution, and nothing happened until May 1 of this year; then he had an attack, with a loss of consciousness, and since then two similar ones; one was quite recently. The slight attacks begin usually with a curious, nervous tingling about the knee, which passes up the side to the middle of the body and then passes off. After it there is a numb, dead feeling in the leg. There is often a jerking of the muscles of the calf. In attacks where consciousness was lost the tingling would go further, extending up the body and down the arm, and the mucles of the face would be seen to be drawn. Or an attack may begin with an odd sensation below the angle of the scapular—a feeling as though swelling or a queer, uncertain feeling. At such times the calf muscles also jerk. These attacks are never followed by an increase in weakness. Two or three days ago he had an attack in which the sensation began on the sole of the foot and came around to the back of the leg; then the foot broke out into a profuse sweat on the plantar surface. Physical examination now shows the hands to be quite strong, the sterognostic sense to be quite good, no sensory disturbance, and the reflexes equal in both arms. He has a distinct hemiplegic gait, the left leg being the weaker. There is no marked swaying with the eyes closed and the feet together. Transferred adductor reflex is quite marked. The

knee kick is normal. The ankle clonus varies; at one time it is present, at another absent. Strumpell's tibialis phenomenon is present in the left leg. Plantar stimulation gives dorsal flexion of the left great toe, though not so markedly as it did a few days ago. There is plantar flexion of the right toe.

The attacks are very constant in their course, the sensation usually beginning about the knee. Their suggestion is some irritative growth which has probably become quiescent, leaving a scar on the right side of the brain, located probably in the upper anterior and also somewhat in the posterior central convolution.

This is not an unusual case of focal epilepsy. The patient is advised to have an operation performed.

Case No. 2. Patient is an elevator examiner, with a complaint of loss of speech and understanding. Family history is good. Personal history: No serious illnesses; no alcohol; only moderate use of tobacco; tripper at 18. The first attack of the present illness came on when he was 37 years old. He was at the table and thought that the other people there were quarreling. He tried to talk, but could not. Attacks recur at intervals. The last was last Thursday (October 9, 1906) while on the street. He can neither speak nor understand during these attacks. After he had been coming to the dispensary for awhile, and was beginning to become educated, he marked the minute hand on his watch when an attack began, and was thereby able to tell the length of the attack. He also has severe pain during these attacks. It begins in the upper part of the left temporal region and runs down the left side of the face. He wrote the following on a card, trying to interpret what he heard during an attack: Miza Raza Noma She Munin Ganza. He takes some little time to recover from one of these attacks.

There is nothing found objectively; no weakness. A slight mid-ear disease was found, the presence of which can hardly explain the noises he heard during the attacks.

An analogous case cannot be found where there is simply a discharge from the speech center. He has probably an irritative lesion over the speech and auditory center—an auditory aphasia. The pain on the left seems not be associated, for the patient is right-handed, and the auditory center should be on the left side. It is probably referred from the left meninges. The patient is still working and apparently doing good work.

An exploratory operation is advised.

Resection of the Sigmoid in Cases of Volvulus—Exhibition of Pictures of the Operation and Specimens—Dr. Bloodgood. The patient has been coming to the hospital for the last 16 years with attacks of subacute intestinal obstruction. On second admission an operation was performed and the sigmoid colon was found to be dilated and twisted. The tortion was relieved and the wound closed. In the other attacks, 29 in number, relief has been obtained by injection of water with the high rectal tube.

Several pictures were thrown on the screen illustrating what was found at operation. There were no adhesions, and the bowel could be easily lifted out of the wound. An interesting point is that the bowel just below the splenic flexure was normal, with a gradual dilatation to within 2 or 3 cm. above the sacral prominence, the entire intestine rectum being involved in the dilatation, which extended to the anus. The peritoneum of the dilated

part appeared white; the mesocolon was white, and not translucent, 1 to 2 mm. in thickness, and no vessels could be seen. There was therefore peritonitis of the sigmoid and colon. Resection was simple, and a lateral anastomosis was done and this fastened to the peritoneum.

Whether this giant colon was as large at the first operation we do not know. At the second operation only some adhesions of the small bowel to the old scar were found, which was also the case at the third operation. This case is of interest also from the fact of the volvulus being relieved by the rectal tube. The exact number of cases of volvulus in literature is not known, but Dr. Bloodgood has collected 95. In 20 of these the operation of resection has been performed, with a mortality of 50 per cent. Only one successful resection has been performed on a gangrenous volvulus. This was done by Garrè in a case of 18 hours' duration, which shows, by the way, that gangrene may occur in 24 hours. In a majority of the cases the tortion is relieved and the wound closed. Others, believing it to be due to a long mesocolon, shorten it. But in these cases the recurrences go to show that this is not the only etiological factor. A chronic inflammation of the mesocolon is often found due, it is thought by some, to a chronic constipation, but Dr. Bloodgood is of the opinion that it is due to the repeated twisting of the bowel. The etiology is not clear in these cases, but the treatment is very plain. First the high rectal tube, and, if no relief is obtained in a few hours, perform a laparotomy. Unless there is gangrene, close up after straightening out the loop. Operate again in a few weeks for resection, for this operation during the attacks gives a high mortality. A special sound has been devised, of a spiral nature, which is put into the bowel per anum, and it fills out the bowel, and a skiagraph then shows just where the dilatation is. This has proved accurate in two cases. Inflation is dangerous, for gas is the chief factor in obstruction.

The Paravertebral Triangle of Dullness (Grocco's Sign) in Pleural Effusions—Drs. Thayer and Fabyan. Drs. Thayer and Fabyan read a communication on Grocco's sign, of which the following were the chief points:

(1) In 32 cases of pleural effusion a paravertebral triangle of dullness at the base of the opposite chest (Grocco's sign) was clearly demonstrated in 30. In one of the remaining cases, an instance with a small effusion where the examination was rather hastily and imperfectly made, but a small indefinite area of dullness was noted. In the other case the absence of the paravertebral triangle was easily explained by the position of the exudate—an interlobar empyema. In the third instance in which a triangle was demonstrated later it was missed on the first examination.

(2) This triangle is an area of relative dullness, the vertical side of which is represented by the line of the apophyses of the vertebrae, the apex reaching a point somewhat above the level of flatness of the effusion; the base formed by the lower limit of the pulmonary resonance on the healthy side for a distance of from 2 to 7 cm.; from the spine the hypothenuse by a line connecting these points. This last line shows sometimes a slight outward convexity. The dullness is more marked as one approaches the spine. When the patient lies on the affected side the triangle of dullness almost entirely disappears to reappear on the assumption of the erect posture or on lying on the opposite side.

(3) In the trianguar area of dullness the respiratory murmur is often

suppressed and of a quality similar to that heard over the effusion. Accophony, or a nasal quality of the voice sounds, may also be present. The coin sound, when the maneuver is carried out by placing the coin on the front of the chest wall below the level of the effusion, shows the same metallic ring as that which is observed over the affected side. These signs may be so marked as to make it possible to outline the area of the triangle by auscultation.

(4) The triangle is usually larger on the left—that is, in the case of right-sided effusions—than on the right side.

(5 In three cases of encapsulated effusion the presence of the paravertebral triangle of dullness on the opposite side proved of real diagnostic assistance.

(6) Our experience justifies the conclusion that the paravertebral triangle of dullness is a remarkably constant and characteristic sign of fluid in the pleural cavity. It further supports the assertion of the discoverer that it may be of particular value in the case of encapsulated effusions. We regard the sign as an important addition to our means of diagnosis of effusions in the pleural cavity.

(7) As to its cause, we are inclined to accept the explanation offered by Baduel and Siciliano, namely, that the fluid, lying against and passing anteriorly over the bodies of the vertebrae, act as a mute in suppressing the sonorous vibrations of the spine. This deadening of the resonance is naturally appreciable for a certain distance beyond the median line over the area occupied by the transverse processes and the first part of the ribs. It is more marked and extends over a wider area at the base, where the fluid, collecting in the sinus of the pleura, comes into wider contact with the vertebrae and pushes further around towards the opposite side.

The displacement of the contents of the mediastinum—aorta, esophagus, azygos vein, heart—may play a part, especially in effusions on the right side of the chest, in producing this dullness, as well in bringing about a certain degree of compression of the lungs on the opposite side.

Sahli's Desmoid Reaction in Gastric Diagnosis—Dr. Boggs. The simplicity of the technique of the test: Sahli early in 1905 described this test as a means of getting at the functions of the stomach without the use of the stomach tube, basing it upon the assumption that reticulum was digested by peptic juice, but not by pancreatic juice. Therefore the capsule is released if the gastric is active, but no test is gotten if inactive. The test substance is enclosed in thin rubber damask and tied with raw catgut. The desmoid pill is composed of some substance or substances recognizable in the urine or sputum as methylene blue or iodine. No. 00 catgut is used to tie the rubber. The pill is given with the principal meal of the day and under perfectly normal conditions, thus avoiding the psychological element attendant upon a test meal followed by the stomach tube. The urine is tested for methylene blue at 7, 12, 18 and 24 hours after the meal. If its appearance is delayed more than 24 hours, the test is considered negative. The color perists from 2 to 12 days after the test. Methylene blue may be excreted as a colorless chromogen; so the urine should be boiled with one-fifth its volume of glacial acetic acid to bring out the color.

Technique of the pill: Do not stretch the rubber too tight, for the catgut or the teeth may cut it. Put it around the pill and wind it up and tie it with

the catgut previously softened in cold water. Have the knot only on one side. The sac should be watertight and should not have enough excess rubber to make it float. In trimming off the rubber, cut through only one thickness at a time, so that the edges do not adhere together. Test it in water and wash off the methylene blue that may be on the outside. Reticulum takes a long time to digest. There is no animal food that takes longer. Therefore the maximum power of the stomach to digest is tried, for indigestible substances remain on the greater curvature longer. This is a good test for free hydrochloric acid and is easy and can be used when the stomach tube cannot. It does not replace the exhaustive gastric analysis, however, but is useful in following cases. A large amount of organic acid does not affect the test.

The Prophylaxis and Treatment of Internal Diseases. Designed for the Use of Practitioners and Advanced Students of Medicine. By F. Forcheimer, M.D., Professor of Theory and Practice of Medicine and Clinical Medicine, University of Cincinnati. New York and London: D. Appleton & Co. 1906.

Coming from an eminent teacher of clinical medicine, such a book as this is most welcome. Its title emphasizes the large obligation which modern medicine lays on private practitioners in the matter of prophylaxis. This great responsibility is a favorite theme of medical writers, but the actual practice of medical men does not justify their eloquent praise of prophylaxis. Only surgeons and obstetricians bring the resources of preventive medicine to bear upon their daily tasks. Clinicians are in this respect 20 years behind the times, and all their graceful obeisances to prophylaxis are as sterile as the worship of the dimpled elbow of Katisha. When such an authority as Forcheimer has gone so far as to write a book on the prophylaxis of internal diseases one may believe that a virile instinct of prevention is at last astir among clinicians. If so, the chief obstacle in the way of public hygiene will soon be removed. Forcheimer has made the first attempt in America to discuss prophylaxis from the view point of private practice. The German book recently done into English by Wilmott Evans and H. Timbrell Bulstrode and Forcheimer's book are the only guides available to American physicians in questions of individual prophylaxis. The offering is not quite so opulent in *esse* as in oratorical *posse,* but nevertheless it is, as we have said, gratifying to announce such a title as this. The first chapter is on typhoid fever, and the book therefore begins with the disease which would be now as rare as puerperal fever or surgical septicemia if clinicians had, as obstetricians and surgeons have done, proved their faith by their works. Unquestionably such a book as Forcheimer's is needed, and in time many such books will be written.

The need of a book on treatment is hardly less pressing than the need of a book on individual and private prophylaxis. In this part of his work Forcheimer is strong. He knows the resources of curative medicine thoroughly, and has done in this book much to rescue the American medical man from therapeutic nihilism, on one hand, and, on the other hand, from the brainless hand-me-down therapy of the nostrum mills.

MARYLAND MEDICAL JOURNAL.

JOHN S. FULTON, M.D., *Editor.*

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BALTIMORE, DECEMBER, 1906

THE WEATHER-WISDOM OF COWS.

IT is literally true that the patient cow is behind the recent advance in the price of milk, and, at the other end of the line, the resulting shock will fall on the equally patient consumer. Neither cow nor consumer will get anything out of the rise in price. The profits will be divided by the shrewder middlemen. Late in October, while Father Winter was chasing Indian Summer round the hayricks, the cow believed that Winter had a sure thing of it, and shortened her yield of milk forthwith instead of waiting for December frosts. This brought the winter price of milk into effect weeks earlier than usual. Neither cows nor consumers know much about the winter price of milk. The winter price is always higher. Possibly this is right; at all events it is customary. It is of no interest to the cow. The summer price is lower because the farmer has more milk and the dealer less demand than in winter. The winter price is higher because the farmer has less milk and the dealer a greater demand than in summer. Winter prices usually vary, it is said, from 15 to 17 cents a gallon, but from now till next March the wholesale price will range, the dealers say, from 18 to 20 cents a gallon. According to one authority, an increased demand has caused the rise; another authority says that the high price is due to shortened supply. One thing is certain—if the dealer expends one additional cent, he will add two cents to the consumer's bill, and unless the consumer is quite satisfied to have the seasonal blunder of the cow brought home to him in this form he had better make ready his protest. Unlike the horse, the cow is not a noble animal. When winds are chill her spirits do not rise. She becomes a dismal, shivering creature, stingy with her milk and generally indifferent to the farmer's interests. The poor farmer also becomes dejected and neglects his cows, but he carries his shrunken quantum of milk to the station and makes his moan to the dealer. The dealer, from long experience, knows that it is impossible to reason with the farmer, and easier to reason with a consumer than with a cow. So the farmer gets his winter price. The arrangement is unprofitable to the cow and to the consumer, and, curiously enough, not profitable to the poor farmer.

There are a few farmers who know that cows are amenable to reason and responsive to intelligent handling. They can be brought into full milk in October or November, and, by careful feeding and housing, can be kept productive all winter. But the farmers who cannot do this are so great a majority that the winter shortage never fails to occur, and the increased winter price follows of necessity. A very few good farmers make good

profits all winter, while the enhanced price simply keeps the poor farmer afloat till the cow's intelligence revives and starts the farm in the spring. Ambition, the last infirmity of noble minds, affects very few cows and not many farmers. They will respond only to the spur of necessity. In some places the spur of necessity has been applied to the farmer, and, under this stimulus, farmers and cows have found it possible to bring winter yield nearly up to summer standards. It is only necessary to stipulate in the contract with a farmer for the daily delivery of a definite amount of milk. If the farmer falls short of the stipulated amount, he must accept a less, and not a greater price per gallon. Under such circumstances farmers and cows pull together as they should.

WHY IS THE PRICE OF MILK?

The winter price of milk now established is higher than ever before, and one penny in the wholesale price means two pennies in the retail price. This looks like applying the spur of necessity at the wrong end—to the consumer. Consumers are in general as docile as cows, and will stand still while being milked, but they may kick if carelessly handled. There never was a better chance than now for cows and consumers to face about and make farmers and dealers stand up straight and answer questions squarely, or else take the horn. Is the milk supply any better than formerly? What has been done to make it better? Nothing, so far as we know. How is it that more typhoid fever has been definitely traced to milk in 1906 than in any three preceding years, Did the farmer really get 15 cents as the lowest price last winter? Wasn't the real price 13 cents? Isn't it true that you retailed milk all last winter for 24 cents a gallon or less? If 18 cents wholesale means 36 cents retail, why did not 15 cents wholesale mean 30 cents retail? What does it really cost to distribute milk? What is the wholesale price of the best milk, the kind for which well-to-do people pay 60 cents retail, Twenty cents, isn't it? And how many farmers are able to produce milk of this quality, Very few, aren't they, and the contracts are all made for this winter. Where, then, do you expect to get any milk worth 20 cents wholesale? What will you charge at retail for milk costing 20 cents? Forty cents? Then why should anyone pay 60? Where are the people who can take large amounts at 40 cents? What does it cost to produce the kind of milk which now brings 20 cents wholesale? About 12 cents? And 8 cents per gallon is a satisfactory profit to top-notchers in the business? Then what does it cost to produce the kind of milk which retails at 24 cents? Can you pay the farmer more than 12 cents for such milk? If 18 cents will be your lowest wholesale price, must your six-cent quart rise to nine cents? If it be true that dairy foods are more expensive than formerly, do cows really require cauliflower and rolled oats? Is it inevitable that cows shall be fresh only in the spring and farmers stale all the year round? If the farmers need better stables, what of it? Don't the stables need better farmers? If the cow that dwells in marble halls deserves 20 cents for her milk, what is due to the cow who spends half a winter in the shade of the old apple tree? Tell us the truth about this business if you know it, and if you don't know it, go away and learn it. There may be some reason for advancing the retail price of milk. What is it?

THE SANITARY INTERVENTION OF THE UNITED STATES IN CUBA.

The second intervention of the United States in Cuba will give little chance for the glorification of American arms, but it will, perhaps, afford some scope for the exploitation of American skill in public hygiene. The causes which led to the failure of the Cuban Government of course affected the sanitary arm of the Government and brought it down with the rest. Yellow fever has again to be suppressed, and already a special detail of medical officers is in charge of this problem. Before the glory of this performance touches our brain, let us consider for a moment the sanitary achievements of Cuba Libre.

At the moment of intervention, in 1898, the status of sanitary government in Cuba was very low, about as low as in a majority of the United States. In the matter of yellow fever, one must remember that a Cuban physician had held for several years the right clue to the etiology of yellow fever. Finlay's theory might have been tested as well in Louisiana or Texas but for one essential condition—a military government—and this came with the intervention. The credit of actual demonstration belongs to Americans, and the opportunity of practical application fell naturally to Americans. The partition of glory in this achievement was in some degree accidental and was not perfectly fair. When Cuba's independence was established, a good sanitary government was soon organized, and in the next six years Cuban health officers proved as efficient as similar officials elsewhere. In the control of yellow fever they set an example which has not yet been equaled, though as good or better chances were offered year after year to other governments, including our own. The Cubans, though weaker in numbers and resources than many American States, published, from the first, good accounts of mortality and made substantial progress in the prevention of other diseases besides yellow fever. In these respects they did as well as any, and better than most, of the States south of the Mason-Dixon line.

So long as the Administration gave reasonable financial support the Superior Board of Health of Cuba showed no signs of weakening in its executive work. In the matter of official veracity it set a standard somewhat higher than that of many American States.

Considering its small working force and equipment, the little laboratory of hygiene at Havana did as much and as good work as similar laboratories in the United States.

The sanitary government of Cuba by Cubans fell because, and only because, the Government of which it was a part fell. A really great achievement, possible to the Medical Department of the United States Army in Cuba, is to show the Cubans wherein they were strong; to establish the existing sanitary organization in the confidence of Cubans, as it was established in the confidence of other nations. In short, if the Medical Department of the United States Army can cause the second American intervention to appear, so far as sanitary works are concerned, superfluous, that will be a performance such as men can love beyond all spoken or recorded praise.

Medical Items.

BALTIMORE.

Prof. D. M. R. Culbreth has resigned the chair of materia medica in the University of Maryland. The lectures are now given by Prof. Joseph E. Gichner.

Dr. Henry M. Hurd, superintendent of Johns Hopkins Hospital, left Baltimore on November 17 to be absent for a year. He will visit Cuba and Mexico, and later will go to Europe. On November 1 Dr. Hurd was given a farewell banquet by the present and former members of the hospital staff, about 100 men in all. On this occasion Dr. Wm. H. Welch presented to the trustees a portrait of Dr. Hurd painted by Wm. M. Chase, which will be hung in the library of the hospital.

A systematic effort to punish all alleged physicians who are practicing without the necessary certificate from the State Board of Medical Examiners culminated recently in the indictment by the Grand Jury of 10 of these practitioners. These are the names of the indicted men: W. W. Abbott, 1614 Wilkens avenue; Ernest Tanner, 727 Hanover street; H. I. Adler, 17 South Bond street; G. W. Gannaway, 15 South Eutaw street; Lincoln Cromwell (colored), 811 Ensor street; Raymond Gault, 410 Park avenue; Thomas E. Green (colored), 730 Vine street; William B. Lingo, 506 Hanover street; H. M. Smith (colored), 500 Dolphin street, and John Taylor (colored), 1427 Orleans street. Mr. Lingo's case is a peculiar one. He is a graduate of the Baltimore University School of Medicine. He has been practicing for several years and is said to have a large practice in South and East Baltimore. He is one of the Baltimore & Ohio Railroad's surgeons and a medical examiner for the Order of Woodmen. Mr. Lingo took the examination before the State Board, but failed. "Dr." George W. Gannaway is a spiritualist medium and astrologer as well as a curer of various ills. He was formerly a candy merchant, then gained a certain amount of fame as a furnisher of tips on the stock market, obtained through spiritual agencies. "Dr." Raymond Gault of 410 Park avenue is a clairvoyant and psychic, according to his advertisements. Most of the men indicted have given bail, but one or two have left town. Mr. H. Arthur Stump is counsel for the State Board.

MARYLAND.

Another epidemic of typhoid fever at Wesleyan University, Middletown, Conn., has been traced by Professor Conn to infected oysters eaten at fraternity banquets on October 12.

Diphtheria continues unusually prevalent in Maryland. The same story comes from nearly all parts of the country. Apparently we are now in the midst of one of those curious epidemic waves which occur at long intervals in the history of many infectious diseases. It is now a little more than 10 years since antitoxin began to be freely used in Maryland. The results, as shown in the mortality tables, will undoubtedly be interesting. It is not too much to hope that, notwithstanding the extraordinary prevalence of the disease, its mortality may not be unusually heavy. The curative use of antitoxin is now quite general, but its use in the prophylaxis of diphtheria should be far more extensive. If the makers of antitoxin could be induced to tell the truth about their sales year by year the figures would be of much value. It is probable that the last three months have far exceeded any equal period of time since the production of antitoxin was begun in this country.

Dr. John R. Benton was convicted in the Circuit Court of Queen Anne County on November 7 on the charge of failure to report a case of diphtheria to the county health officer, Dr. Wm. T. Henry. The case was a criminal appeal by the State from a magistrate's trial, which resulted in a verdict of "not guilty." The magistrate's verdict was a peculiar one. Dr. Benton was charged with the neglect of his duty as a physician. At the magistrate's trial the defense contended that Dr. Benton could not be guilty as a physician, since the patient was his own son and he had called in a fellow-practitioner to attend the boy. Dr. Benton was not therefore responsible as a physician, his duty in the matter of notification being only that of a householder. The magistrate decided that Dr. Benton was guilty as a householder, and fixed the penalty at one dollar and costs. Counsel for both sides advised the justice that he could not render a verdict on any other charge than that alleged in the writ, which charged Dr. Benton with neglect of his duty as a physician. The magistrate then changed his verdict, declaring Dr. Benton not guilty as a physician. The State appealed from the decision. In the Circuit Court counsel for defense asked to have the case dismissed on the ground that the law of 1906, which allows the State to appeal from a

magistrate's decision in a criminal case, is unconstitutional, being contrary to the provision of the Constitution, which says that a man cannot be put in jeopardy twice on the same charge. The court ruled against the defense on this point. Testimony was then taken and the defense was the same as at the magistrate's trial, namely, that Dr. Benton could not be held accountable as a physician in the case of his own child when he had called another physician to act as medical attendant. The court decided that, by calling in another physician, Dr. Benton had not been relieved of his duty to the State in the matter of notification. The magistrate's judgment was therefore reversed, and a verdict of guilty was entered.

GENERAL.

The University of Pennsylvania has established a department of experimental surgery under the direction of Dr. J. E. Sweet.

Dr. John A. Ouchterlony of Louisville, who died recently, bequeathed $100,000 for the foundation of a tuberculosis hospital in Louisville. The will was contested, but a compromise was reached, and the bequest is available for the purpose mentioned.

The death penalty will probably be abolished in France. At a Cabinet meeting in Paris on October 30 a measure was offered abolishing capital punishment. This means that the Chamber of Deputies will probably pass a law in accordance with the Cabinet recommendation.

Dr. Osler delivered the Harveian oration before the Royal College of Physicians, London, on October 18 on "The Growth of Truth, as Illustrated in the Discovery of the Circulation of the Blood." The oration was printed in *Boston Medical and Surgical Journal* for November 1.

Los Angeles has now opened its isolation hospital. Besides the differences in latitude, longitude, population, resources, etc., an important difference between Los Angeles and Baltimore is this—that Los Angeles appropriated $56,000 for a hospital and has it, while Baltimore appropriated $25,000 and hasn't a hospital.

Dr. John Collins Warren has retired as chief surgeon to the Massachusetts General Hospital, having reached the age of 60 years. Dr. Warren announced his retirement on October 16 during a public address in commemoration of the first operation under ether, performed 60 years ago by his grandfather, Dr. John Collins Warren.

Two Cincinnati surgeons are sued for $10,000 damages by a man who consented to furnish a certain amount of skin to be used for grafting. The plaintiff claims that he agreed to have a strip of skin one inch by six taken from one of his legs, but that both legs were taxed to the amount of 42 square inches. The extra amount was removed without his consent and while he was under an anesthetic.

New York city is to have a tuberculosis hospital at Otisville, in Orange county, about 75 miles from New York. The site is at an elevation of about 1400 feet. Accommodations will be provided for about 200 patients. The construction and equipment of shacks for patients will cost $80,000, the kitchen and dining rooms will cost $20,000, a dairy barn for 40 cows will cost $18,000 and a power plant $30,000. The total cost will be $225,000.

The trustees of Jefferson Medical College, Philadelphia, have received from the public school teachers of the city the sum of $5000 for the endowment of a hospital room to be known as the Lewis Elkin Memorial Room for the free use of public school teachers needing medical or surgical attention. The teachers have chosen this method of expressing their appreciation of a bequest by Mr. Elkin of the sum of $2,000,000 for the purpose of providing annuities for superannuated women teachers.

Besides appropriating $100,000 for a tuberculosis hospital in the District of Columbia, Congress is now considering a bill providing for the placarding of houses in which tuberculosis exists and requiring the health authorities to fumigate houses vacated by the death or removal of consumptive occupants. The placarding of tuberculosis houses is a first-rate idea. The proper way to do it is to post a tuberculosis bulletin board on all residences and office buildings. The board should have "in" and "out" columns. Tuberculosis persons should be required to put their names in the "out" column on leaving and in the "in" column on returning. They should also be required to wear pneumatic heels actuating an appropriate danger signal worn beneath the coat, sounding a musical note by day and showing a red flash by night.