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# The Cleveland Medical Journal

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VOL. XII

JANUARY, 1913

No. 1

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## A Clinical Report on the Complement Fixation Test in Gonorrhoea

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In May, 1911, Schwartz and McNeil<sup>1</sup>, of the Department of Clinical Pathology of Cornell University, published a very complete report of work which they had been doing with the complement fixation test in gonococcus infection. The report was such as to indicate that the test might prove of clinical value, and with the intent of determining the reliability of the test in clinical work, I have, during the past ten months, examined the blood-serum of 158 patients for gonococcal antibodies by the method of complement fixation. The work has been done under the general direction of Doctor W. E. Lower and represents 202 different consecutive tests, nine of which I have been compelled to disregard owing to defective controls, leaving 193 tests, the results of which are herewith presented.

These cases have been furnished for the most part by Doctor Lower from his private practice and from the Out-Patient Department of the Lakeside Hospital and Western Reserve University. I am also indebted to Doctor H. L. Sanford for his courtesy in giving me the opportunity of making tests in a number of cases.

The complement fixation test for gonococcus infection was introduced in 1906 and among the first clinical investigations reported were those of Muller and Oppenheim<sup>2</sup> and of Carl Bruck<sup>3</sup>. These investigators found that in several cases of Neisser infection the blood-serum of the patients in question gave a definite positive reaction, and while there were a few failures in the small series of cases reported the general conclusion

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*Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, November 1, 1912.*

of these workers was favorable as regards the specificity of the test. Following these favorable reports several laboratory investigators undertook the work of improving the technique and of deciding whether or not the test could be considered as specific, or if the presence of bacteria other than gonococci could produce a positive reaction.

The phenomenon of complement fixation as used clinically is primarily a search for antibodies, the presence of which in the patient's serum is supposedly due to the presence or action of a foreign substance known as antigen. In typhoid fever, the antibody having agglutinating properties and known as agglutinin is elaborated, and clinically demonstrated by the Widal reaction. This agglutinin is thought to be produced by antigenic substances derived from the typhoid bacillus and is thus considered a specific reaction product.

Other proteid substances than bacteria when injected into the blood-stream are known to act as antigens and to arouse antibodies. As an example, erythrocytes of the sheep produce in the blood of the rabbit hemolytic antibodies which are active only for the red corpuscles of the sheep, and to designate such antibodies the term hemolysins has been used.

In syphilis an antibody is supposed to be present in the serum due to the action of *Spirochaeta pallida*. It was to demonstrate these syphilitic antibodies that Wassermann and Bruck<sup>4</sup> made use of the phenomenon of complement fixation in the now widely used Wassermann test. It will be recalled that Wassermann at first advocated the use of an antigen prepared by making a salt solution extract of syphilitic liver. When this antigen was brought into contact with syphilitic serum in the presence of complement secured from the freshly drawn blood of a guinea pig or other suitable animal, a firm union of the three elements, antigen, antibodies, and complement resulted and fixation or deviation of complement was said to have occurred. Later Wassermann made his antigen by using an alcoholic instead of a salt solution extract of luetic liver. At present many workers are using alcoholic extracts of normal liver, sheeps' hearts, or other organs, and this, with the fact that in a few conditions other than syphilis a positive Wassermann reaction has been demonstrated, has raised the question as to whether or not the antibody demonstrated by the phenomenon of complement fixation as used in the Wassermann

test is a specific antibody. There can be no question, however, as to the great clinical value of the Wassermann test in syphilis.

The investigators who have been trying to settle the same point for complement fixation secured in gonococcus infection have been materially aided in their work by the fact that they have not had to deal with extracts of organs to secure the antigenic substance. The gonococcus in pure culture has been accessible for the preparation of antigen, and gonococci in urethral pus are sufficiently common to make control sera easily available. The results of the work of Vannod<sup>5</sup>, Torrey and Teague<sup>6</sup>, Wollstein<sup>7</sup>, and others have been to give the test a secure scientific footing.

By means of injections of living gonococci, Torrey and Teague<sup>6</sup> have immunized laboratory rabbits and produced anti-gonococcic sera. In the presence of antigens made by macerating gonococci in salt solution and using the filtrate, these anti-gonococcic sera have been shown to possess antibodies having the property of complement fixation. In working with other pathogenic organisms use of this same phenomenon of complement fixation has been made by several serologists. Bruck<sup>8</sup> succeeded in demonstrating antibodies in the cerebrospinal fluid from cases of epidemic cerebrospinal meningitis, using antigens prepared from the meningococcus. He has also shown fixative antibodies present in serum from streptococcus septicemia, using antigen prepared from streptococci.

Torrey and Teague<sup>6</sup> in their work with the sera from animals immunized by injections of gonococci made a series of control experiments in which they tested those sera immunized to gonococci against antigens prepared from *Micrococcus catarrhalis*, *Bacillus typhosus*, and the meningococcus. It is a well known fact that the meningococcus and the gonococcus have a very close bacteriological relationship. They are both Gram negative organisms. They are morphologically similar. They are both habitually found within the cell-bodies of the leukocytes, and they have very similar cultural characteristics. This same close relationship appears to prevail as regards complement fixation; for while Torrey and Teague secured negative results when testing their antigonococcal sera against antigens prepared from other pathogenic organisms, yet in a few instances they report a positive fixation of complement when these sera were tested against antigen prepared from the meningococcus.

Working with sera from rabbits immunized to gonococci, Wollstein<sup>7</sup> found a uniform fixation of complement in her series of four cases, but as the results were identical with gonococcal and meningococcal extracts used as antigens, it follows that the antibodies present in the gonococcal sera were as readily bound to the prereceptors in the meningococcal extract as to those in the gonococcal extract and she claims that strict specificity is therefore lacking. On the other hand Vannod<sup>5</sup> has conducted similar experiments and has had results diametrically opposed to those of Wollstein, in which he reports that all gonococcal sera tested against gonococcal extracts gave positive complement fixation, but when tested against meningococcal extracts these same sera were absolutely negative.

Schwartz and McNeil<sup>1</sup> have likewise tested the gonococcal antigen against the sera of animals immunized to the following varieties of bacteria: *B. typhosus*, *Bact. dysenteriae*, *Bact. diphtheriae*, *B. pyocyaneus*, *Bact. tetani*, streptococci, and living and dead meningococci with uniformly negative results. The only positive finding obtained was with Flexner's antimeningococcic serum. They also examined the sera of patients suffering from pneumococcus and *Micrococcus catarrhalis* infections, with negative results. From these findings it will be seen that the meningococcus is the only pathogenic organism which has given rise to any question as to the specificity of the test for gonococcus infection. However, this interesting relationship of meningococci and gonococci can hardly affect the value of the gonococcal complement fixation test from a clinical standpoint, owing to the rarity of cases in which the two types of infection could be confused.

Going further than demonstrating the relative specificity of the fixative antibodies set up by the gonococcus as regards other bacteria excepting possibly the meningococcus, Torrey and Teague<sup>8</sup> and Schwartz and McNeil<sup>1</sup> have shown that the various strains of gonococci themselves must be considered in working with this test. As is well known, the gonococcus family is heterogeneous. Any single strain used in the production of an anti-gonococcic serum cannot be relied upon to give a positive fixation test when tested against an antigen in which this strain is absent. The reverse is also true, and an antigen containing but one strain of gonococcus may or may not work satisfactorily when used against sera containing antibodies derived from other strains.



It is, then, important that a polyvalent antigen containing several strains of gonococci be used in the clinical application of this test, and that a few failures were reported by the earlier workers may readily have been due to the fact that they worked with antigen made from a single strain of gonococci.

The technique which I have used in making these tests is that used by Doctor Louis Schmidt<sup>9</sup> and his assistant, Doctor Mathies, of Chicago, and is so nearly identical with that of the Wassermann test, with the exception of the antigen, that I shall only briefly describe the procedure.

The antigen used was prepared by Parke, Davis & Co., and represents ten or more different strains of gonococci. The gonococci are grown out on ascitic agar and while the cultures are young the growth is scraped off the surface of the medium and placed in salt solution. This salt solution emulsion of gonococci is then macerated by shaking for a long period of time and the product filtered through porcelain. To this filtrate is added a small percentage of tri-kresol for preservation.

As in the Wassermann test, the antigen is placed in contact with certain amounts of patient's serum in which all complement has been destroyed by heat. Fresh guinea pig complement is then added in equal amounts and the tubes kept at an even temperature of 37° C for one-half hour. This gives an opportunity for gonococcal antibodies present in the serum to combine with antigen and then bind complement. An hemolytic system is then added consisting of two factors; first, rabbit serum which has been immunized to sheep corpuscles and thus contains hemolytic antibodies, and second, an emulsion of sheep corpuscles in saline. The hemolytic antibodies can only hemolyze the sheep corpuscles in the presence of free complement and it is of course evident that if complete hemolysis now occurs the complement required to effect this hemolysis was not fixed or deviated by the first part of the reaction and the result of the test is therefore negative for gonococcal antibodies. It should be stated that before each test all the components are titred with known positive and negative sera and the proper amounts of the antigen and hemolytic rabbit serum indicated by this titration are used.

In the summary of cases which follows, the various conditions in which clinical application of the test has been made are classified in so far as possible in the same manner as that of Schwartz and McNeil<sup>1</sup> in their excellent report. For the purpose

of furnishing more conclusive results the findings of these investigators in their series of 324 tests are included in the final summary of cases with those herewith reported, thus giving a comparative series of approximately 500 cases.

### Group I—Acute Gonorrhoeal Urethritis:

(a), First attack. Duration three days to three weeks. Gonococci present in urethral pus.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
2 tests on 2 cases.....	2	100	0	0.0

It has been definitely established that in early cases of gonococcal infection the blood findings are negative. It is the opinion of most of those who are working with the fixation test that antibodies cannot be demonstrated in the blood until the end of the third or the beginning of the fourth week. Both of the cases in this group had an infection of less than three weeks duration and both were negative for antibodies.

(b), Duration not certain. No history of previous attacks.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
8 tests on 8 cases.....	3	37.5	5	62.5

It frequently happens that it is desirable to know whether or not urethritis is a new infection or an exacerbation of a chronic condition. A blood test for antibodies a few days after the appearance of a urethral discharge may serve to settle this question; for a positive result in such a test should be taken to indicate the previous existence of a gonococcal focus.

### Group II—Acute Urethritis. Gonococci not found:

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
2 tests on 2 cases.....	2	100	0	0

### Group III—Chronic Urethritis of Gonorrhoeal Origin:

(a), Gonococci present at about the time of test.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
21 tests on 17 cases.....	3	14.2	18	85.8

Case No. 1 of this series was under observation for a period of five months and during that time his blood was tested on three different occasions with each time a positive result.

Case No. 7 is of interest as an example of a double infection, his blood being positive for gonococcal antibodies and also positive for syphilitic antibodies as shown by a Wassermann test.

Although gonococci were present in each of the twenty-one cases of this group, three gave negative blood reactions. Two of these instances were in tests made on the same patient (Cases 16 and 17), four weeks having elapsed after the first test before the second was made. This patient gave a history of exposure to infection seven weeks before the first test was made. He had a profuse urethral discharge containing many gonococci, and he also was another example of a double infection, the secondary lesions of syphilis being apparent, and the Wassermann test positive. At the time of the second test the urethral discharge still contained many gonococci and yet the result of the test was negative. It is difficult to account for the fact that no gonococcal antibodies were discovered by the fixation method. During the interval between the first and second tests the patient had mercurials and while this treatment has been known to produce a negative Wassermann test no such observation has been recorded as regards the gonococcal test. Schwartz<sup>10</sup> has dwelt on the fact that the percentage of failures decreases inversely with the number of strains of gonococci represented in the antigen, and gives in his last report an account of a case in which the blood was negative when tested with an antigen containing but six strains, while the same blood when tested with a twelve strain antigen proved to be positive.

The remaining case in which a negative result was obtained was in a patient who gave a history of urethritis of seven weeks' duration, and who had a scant urethral discharge containing a few scattering gonococci. It should be stated that the presence of gonococci has in the greater number of cases been determined only by means of the Gram staining reaction and in but a small number of cases have cultures been made.

(b), Gonococci not found.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
18 tests on 18 cases.....	5	27.7	13	72.3

The results obtained in testing the blood of this group of patients brings out a point of particular interest. This group includes cases of the postgonorrhoeal type in which the evidence of a previous infection in several instances consisted in a stricture of the urethra. Cases 4 and 5 both had strictures and gave negative blood findings. When it is considered that in stricture we have a scar formation which may or may not set up secon-

dary inflammatory symptoms it is evident that an active gonorrhoeal infection may not exist, and it is therefore to be expected that in some cases no gonococcal antibodies will be found in the blood. On the other hand, it is of course often the case that gonococci are still present in cases of stricture and this is shown in Case 10 of this series, which was one of old stricture with a mild urethral discharge at the time of test containing a few pus cells but no organisms. The blood reaction was positive and several weeks later examination of the urethral smear showed gonococci in abundance, although evidence of a new infection was lacking.

(c), No examination made for gonococci, but serum was taken from cases at the stage when gonococci are usually absent.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
7 tests on 6 cases.....	2	28.5	5	71.5

**Group IV—Chronic Urethritis.** History of gonorrhoea doubtful:

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
11 tests on 11 cases.....	10	90.9	1	9.1

**Group V—Chronic Prostatitis:**

(a), Cases giving a gonorrhoeal history.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
11 tests on 9 cases.....	2	18.2	9	81.8

(b), Gonorrhoeal history doubtful.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
1 test on 1 case.....	1	100	0	0.0

**Group VI—Epididymitis:**

(a), Gonorrhoeal history.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
18 tests on 16 cases.....	7	38.8	11	61.2

Cases 5, 11 and 12 of this group of cases of epididymitis gave a history of previous gonorrhoea, but at the time of test urethritis was absent and the result of the blood test for gonococcal antibodies was negative in each case. These cases were referred for operation and the surgical procedures disclosed a tuberculous and not a gonococcal infection in each. Case 7 of this series when first seen had a very acute epididymitis and an acute gonorrhoeal urethritis, the duration of which could not be accurately learned. The blood was tested and found to be negative, but as gonococci were present the condition was consid-

ered one of recent infection, and this seems to have been the case, as a second blood test made nine weeks later gave a positive result. Three months after the second test the patient had made a complete recovery excepting the fact that the epididymis remained slightly enlarged and much indurated. The urine was then entirely clear with no shreds nor urethral discharge. A third blood test made two weeks ago gave a negative result, notwithstanding the fact that the chronic inflammatory condition of the epididymis still persists. This case is reported in detail here as an instance where, unless correctly interpreted, the result of the blood test could be very misleading. The condition of the epididymis is undoubtedly postgonorrheal but the fact that the blood is negative for gonococcal antibodies is taken to indicate that any active infection present is probably due to secondary organisms and not to gonococci.

(b), Gonorrhoea denied.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
2 tests on 2 cases.....	2	100	0	0.0

**Group VII—Verumontanum Cases:**

(a), Gonorrhoeal history.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
9 tests on 9 cases.....	8	88.8	1	11.2

(b), Gonorrhoea denied.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
5 tests on 5 cases.....	4	80	1	20

In this group of cases the clinical findings were negative for gonococci and the only evidence of a previous infection was an occasional mucoid secretion found at the meatus in the morning, with a congested or hyperemic condition of the verumontanum, as shown by endoscopic examination. Several of these patients were in a state of mental depression as a result of their venereal infection and the assurance given them by a negative blood test proved to be an efficient restorative for their mental condition.

**Group VIII—Clinically Cured Gonorrhoea in the Male:**

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
36 tests on 32 cases.....	30	83.4	6	16.6

This group includes cases which had progressed from an acute or chronic stage of gonococcus infection to complete clinical cure, with the possible exception of a few urinary shreds and the occasional appearance of a scanty mucoid discharge at

the external meatus. A number of these patients were candidates for matrimony and desired assurance that they were non-infectious. Cases 1, 4, 14 and 19 gave negative blood findings and were given permission to marry. Up to the present time these cases remain cured.

Torrey<sup>11</sup>, in his work on rabbits, immunized these animals by injecting gonococci and, as before stated, the blood-sera after such immunization gave positive results in testing for fixative antibodies. Subsequent tests made on the same animals became negative for gonococcal antibodies after a period of sixty days. This point is of interest as indicating the length of time after the active gonococcal infection has ceased to exist when gonococcal antibodies may yet remain in the blood. While the period of time required for elimination of antibodies in the human being is still somewhat problematical, it can be definitely stated that at least fifty days should elapse before negative blood findings should be expected after a gonococcal infection has been eradicated. There are, of course, exceptions to this rule. Case 4 of this series gave a negative result twenty days after a previous test which was positive. Case 6 was clinically cured when first tested, but owing to the fact that the first blood test gave a positive result the case was kept under observation and the blood reexamined after twenty-three days when it proved to be negative and the patient was then discharged. Six months have now elapsed since his dismissal and when seen a month or so ago he was free from all symptoms.

Case 25 contracted his infection on March 24th. This was his first attack. On May 14th he had mild urethritis with gonococci still present and his blood gave a positive result. On August 10th he was placed in the list of those clinically cured and the blood test on that date was negative. For the purpose of ascertaining as to whether a negative finding could again become positive this patient was kept under observation and on October 5th the blood was again tested for antibodies by complement fixation and found negative.

Case 27 was clinically cured at the time of the test. The result of the test was positive, however, and the patient was kept under observation. Twenty-five days afterwards he began to have a urethral discharge without history of recent exposure and this discharge was found to contain gonococci.

**Group IX—Joint Affections:**

(a), Gonorrheal arthritis.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
2 tests on 2 cases.....	0	0	2	100

(b), Gonorrheal arthritis, questionable.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
8 tests on 7 cases.....	6	75	2	25

The complement fixation test should prove of great value in the differential diagnosis of arthritis. Schwartz<sup>10</sup> has recently reported a series of 110 cases of joint affection of varying etiology. In seventeen cases in which gonococci were present in urethral or vaginal pus at the time of test, sixteen or 94.1 per cent gave positive blood findings. Case 7 of the above series, referred for test through the courtesy of Doctor Dittrick, had a chronic arthritis of the right ankle with some ankylosis as shown by the X-ray. The condition had been present ten years. This patient was also a gynecological case. Although a leukorrhea was present at the time of test no gonococci were found in the discharge. She entered the hospital for pelvic exploratory operation and before operation two tests of the blood were made for gonococcal antibodies with negative results. Before operation, but after she had entered the hospital, an acute inflammatory arthritis of the left knee developed. This was thought possibly of gonococcal origin and a second blood test was made at this time with a negative result. The patient was put on salicylates and the joint condition became much improved, after which laparotomy was performed and the pathological findings consisted of a small myoma of the uterus, a chronically inflamed left tube, and a right hydrosalpinx containing about 40 ccm of clear, transparent fluid. No active infectious process was apparent, although from the history given the condition was in all probability post-gonorrheal as regards the pelvic findings. The arthritis responded well to salicylates.

**Group X—Cases Treated with Gonococcal Bacterins:**

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
33 tests on 18 cases.....	5	15.2	28	84.8

While it has been shown by work on animals that gonococcal antibodies may be produced in the blood by injecting preparations of gonococci, it does not follow that in all cases where patients have received vaccines before testing the blood that the latter will

give a positive fixation reaction. Much depends on the method of inoculation and the reliability of the vaccine; and there are numerous other factors which are identical with those encountered in the problems of establishing an active immunity. While this series of cases demonstrated that most patients treated with vaccines do give a positive blood reaction, there were, however, two cases (24 and 26) which had received during the previous six weeks subcutaneous inoculations of 300,000,000 gonococci in divided doses and the blood findings were found to be negative. Both of these cases gave but little clinical evidence of Neisser infection and vaccine therapy had been employed empirically. Keyes<sup>12</sup>, of New York, reports having tried on his own person the effect of gonococcal vaccine, as regards the production of gonococcal fixative antibodies with a negative result.

Case 2 of this series had received a small dose of vaccine a day or so before the first test made, which was negative. When the blood of this patient was again tested one month later it was found to give a positive reaction.

Case 14 was referred through the courtesy of Doctor Sanford and at the time of his first test had received about 500,000,000 gonococci in the treatment of a subacute arthritis of the left knee which had followed an acute gonorrhoeal urethritis six weeks previously. In addition to testing the blood of this patient, a test for fixative antibodies was made on serous exudate secured from the knee itself. Both the blood and exudate gave strongly positive reactions, and since the first test on March 1st, after which the patient received no further vaccine treatment, the knee was tapped five times during a period of eight months, and the serous exudate tested for antibodies each time. All tests have given positive reactions, although the last test made on October 19th indicated that the number of antibodies was decreasing.

**Group XI—Miscellaneous cases with no sign nor history of gonorrhoea:**

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
5 tests on 5 cases.....	5	100	0	0.0

**Group XII—Gynecological Cases:**

(a), Gonorrhoea definitely present or suspected.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
7 tests on 6 cases.....	3	42.8	4	57.2



(b), Cases with no signs nor history of gonorrhoea.

	Negative		Positive	
	Cases	Per Cent	Cases	Per Cent
1 test on 1 case.....	1	100	0	0.0

Summary

	Author's Cases				Cases reported by Schwartz and McNete			
	Negative		Positive		Negative		Positive	
	No. of Cases	%	No. of Cases	%	No. of Cases	%	No. of Cases	%
Group								
I, Acute Gonorrhoeal Urethritis:								
(a), First attack. Duration 3 days to 3 weeks.....	2	100	0	0	5	100	0	0
(b), Duration uncertain. No history of previous attacks.....	3	33	5	62	0	0	1	100
II, Acute Urethritis. Gonococci not found.....	2	100	0	0	1	100	0	0
III, Chronic Urethritis of Gonorrhoeal origin:								
(a), Gonococci present at about the time of test.....	3	14	18	86	0	0	4	100
(b), Gonococci not found.....	5	28	13	72	9	20	27	80
(c), No examination made for gonococci, but serum was taken from cases at the stage when gonococci are usually absent.....	2	29	5	71	1	13	7	87
IV, Chronic Urethritis, history of gonorrhoea doubtful.....	10	91	1	9	3	75	1	25
V, Chronic Prostatitis:								
(a), Cases giving a gonorrhoeal history.....	2	18	9	82	8	32	17	68
(b), Gonorrhoeal history doubtful.....	1	100	0	0	1	50	1	50
VI, Epididymitis:								
(a), Gonorrhoeal history.....	7	39	11	61	1	33	2	67
(b), Gonorrhoea denied.....	2	100	0	0	3	75	1	25
VII, Verumontanum Cases:								
(a), Gonorrhoeal history.....	8	89	1	11	6	35	11	65
(b), Gonorrhoea denied.....	4	80	1	20	4	33	2	67
VIII, Gonorrhoea in the male clinically cured.....	30	83	6	17	30	57	22	43
IX, Joint Affections:								
(a), Gonorrhoeal arthritis.....	0	0	2	100	0	0	14	100
(b), Gonorrhoeal arthritis questionable.....	6	75	2	25	3	43	4	57
X, Cases treated with gonococcal bacterins.....	5	15	28	85	0	0	7	100
XI, Miscellaneous cases with no signs or history of gonorrhoea.....	5	100	0	0	20	100	0	0
XII, Gynecological Cases:								
(a), Gonorrhoea definitely present or suspected.....	3	43	4	57	6	21	23	79
(b), Cases with no signs nor history of gonorrhoea.....	1	100	0	0	20	67	10	33

In conclusion it may be said that in this series of 193 tests a positive reaction for gonococcal antibodies has been secured in no case in which the absence of a gonococcus infection was certain. Two cases in which a urethral infection had been present more than four weeks and in which the urethral discharge contained Gram negative intracellular diplococci, at the time of test gave a negative reaction.

In over 80 per cent of cases in which the possibility of an active gonococcal infection was indicated, either by the bacteriological findings or the history, the blood examination was positive.

In cases clinically cured over 80 per cent gave a negative reaction, and in no case in which a negative reaction has been found has there been evidence of recurrence of the previous infection.

In nearly all of our various clinical tests a certain amount of error is to be expected. The fixation test in gonorrhoea is probably no exception. From the results obtained in this series of cases, however, it seems that this test has great value from a clinical standpoint.

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**Antityphoid Vaccination as an Excuse.**—A disposition to make the method of vaccination against typhoid an excuse for maintaining insanitary conditions is not one that should be encouraged. This seems, however, to be the tendency of a recent newspaper editorial on typhoid immunization, in which it is declared that the method will “be a boon in towns where water-purification plants cannot be built because of the expense.” It can hardly be believed that this point of view will find many supporters. It is too much like blowing out the gas because there is a good chance of recovery if the pulmotor is brought in time. Taking trouble and especially spending money for a good water supply may seem to some minds more difficult than having some one inject a prophylactic dose of dead bacilli, thus permitting the intelligent but impecunious citizen to drink sewage-laden water with impunity. We can hardly believe, however, that this method of reasoning will become general. (*Jour. A. M. A.*)

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**Newspaper Medical German.**—From an Ohio lay newspaper we learn of the performance of “a Cæsarian operation, otherwise known as *Kaesser Snit*” (italics ours). The reporter must have learned his German in an Americanized rathskeller by lingering too long over a “wiener Snitzel”—or perhaps he was the person who, in the guise of a waiter, wrote down our order for muenchener beer as “Minsner.”

## Present Day Conceptions of the Pathologic Physiology of Graves' Disease from the Surgeon's Viewpoint

By GEORGE W. CRILE, M. D., Cleveland

The viewpoint of surgery in Graves' disease is drawn from four sources of data: 1st, Observation and analysis of the clinical history and the phenomena of patients before operation.

2nd, Observation of the immediate effect of surgical operations performed on other parts of the body and on the thyroid in cases of Graves' disease.

3rd, Observation on the pathologic anatomy of the thyroid associated with Graves' disease.

4th, Observation on the clinical end results following operation.

The data which I shall summarize and from which I shall draw conclusions are derived from 254 cases which I have treated surgically. Had I time I should like to refer to the evolution of the surgical treatment in this series, at first performing these operations on these highly sensitized patients by the rude technique of ordinary operations then in vogue. As a result their entire organism was driven to explosion while on the operating table and for several days that followed. The mortality was high and the morbidity intense. At first we believed the cause of this clinical upheaval was absorption of the thyroid secretion, but this was disproved by observing no abatement when the raw surface was cauterized by chemicals and by heat; no abatement when the wound was left wide open and packed with dry gauze; when only a ligation of the superior thyroid was made with no trauma and no division of thyroid tissue; and, further, I frequently observed identical phenomena when the patient was under any strong emotional strain unrelated to operation. Excluding the absorption of thyroid secretion as the cause, we then assumed that the psychic factor was alone the cause. We then elaborated a technique whereby the psychic factor was excluded. As a result the hyperthyroidism was cut in two approximately in the middle.

We then hit upon our general hypothesis as to the pathologic physiology of surgical shock, which was that shock was due to the driving of the motor mechanism of man, leading to activity of the brain cells and consequent exhaustion. From that was

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*Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, Friday, October 11, 1912.*

drawn a corollary of wide application and which, among other things, at once cleared up the cause and the prevention of post-operative hyperthyroidism. This is the principle of anociassociation heretofore elaborated and published. This involved the production of anesthesia in bed without the patient's knowledge, transporting the patient to the operating room under anesthesia, and in the operation the entire field was blocked with local anesthesia, so that no impulse from the field of operation could reach the brain. Therefore the brain received no activating stimulus through the special senses and none through the pain receptors in the wound. As a result of carrying out precisely this exacting technique we were for the first time able to complete the operation without a change in the pulse rate and we hoped this long series of attempts to overcome the mysterious, baffling hyperthyroidism had finally completely succeeded. But although our results now were the best we had yet achieved, some degree of hyperthyroidism still appeared.

We then resolved to push anociassociation to the utmost limit by adding two important points. First, the patient was kept under anesthesia until returned to her bed and until perfectly quiet, and the precise conditions excepting the dressings were restored just as they were before the patient took her inhalations. Secondly, on the completion of the dissection the entire wound was blocked with a 0.5 per cent solution of quinin and urea hydrochlorid. The effect of this block is to prevent for a day or more painful impulses from reaching the brain. As soon as we had forged this last link in the chain of the anociassociation technique hyperthyroidism was banished. This stage was reached in our two hundred and fortieth operation. Since then we have performed fifteen operations by this method; the results will be shown later.

Turning now to the first of our four sources of data, viz., the clinical history of these patients and the preoperative phenomena, we may summarize as follows. Every patient had an enlargement of the thyroid; not every patient had a palpably enlarged thyroid when the first symptoms were noted. The five great clinical causes assigned are, first, adverse emotional strain—such as worry, fear, disappointment. The second cause was a previously existing thyroid; the third, acute infective diseases; fourth, tumors of the thyroid; fifth, *the excessive use of thyroid extract*

*or of iodin. Whatever the cause the phenomena differed not at all as to kind but as to degree.*

As regards the pathologic anatomy, there was in every instance in my series a distinct thyroid enlargement by reason of hypertrophy, hyperplasia or tumor.

What is the effect of the ligation of a part of the blood supply of the thyroid, or of excision of a part of the gland? Since we have been utilizing the principle of anociassociation, the effect has been more clearly seen. In every instance the patient experiences subjective relief of nervousness—feels as if a load had been raised, feels buoyant and less depressed. There is a striking change in the facial expression, the same kind of difference as between the face of a quiescent individual and that of the man in the arena.

When do these phenomena begin to appear? Usually on the second day, and they appear equally clearly in the patient who does not know that his gland has been removed as in the patient who does know. That is to say, the improvement is therefore *independent of psychic influences*. The convalescence may be modified by the type of operation, by the postoperative environment, and by intelligent guidance. The convalescence under complete anociassociation is as much better as is the immediate result. The patient whose sensitized motor mechanism has been driven by facing the operating room, or driven through stimulation of the subconscious brain in the course of operation unprotected by local blocking is handicapped just as much as when the motor mechanism is driven by the sickness of a child or by reverses of fortune or by a threatened danger. Anociassociation enables the patient to proceed unhampered on his way to recovery.

Then, too, the rate and the degree of ultimate recovery is dependent on environment. If when the patient leaves the hospital she is met by sickness, worry, and perhaps poverty, the convalescence will, by so much, be hampered. We must bear in mind that the victims of Graves' disease, like well persons, can travel faster without burdens than with burdens. On the other hand, whatever speeds the well man agreeably on his way, even more speeds the convalescent exophthalmic. No single patient in our series failed to be either improved or cured.

I now wish to make an observation having a peculiar significance, viz., the same technique that prevents the so-called hyperthyroidism also prevents the so-called aseptic wound fever. The

same reason why a pleasant personal relation of individuals leaves the pulse, temperature, and respiration unchanged, is the reason why anociassociation prevents the so-called aseptic wound fever and so-called hyperthyroidism. Hyperthyroidism, aseptic wound fever, are general disturbances of metabolism—of the output of energy. An increased output of energy may increase the pulse, temperature and respiration. These are due to driving of the motor machine. The motor mechanism may be equally well driven through emotional and motor acts, such as a child in anger, or in punishment; an animal or a man frightened; a man or animal in great muscular activity; indeed, any of the emotional or motor acts—all of these are expressed by increase in pulse, temperature and respiration—all might be called aseptic wound fever, or postoperative hyperthyroidism. In Graves' disease the one great characteristic is the low threshold of the brain to all stimuli. The threshold of the normal brain can be lowered by thyroid extract, by injury, by emotion, by any activating agency whether chemical or environmental. There can now be no doubt but that the brain can directly stimulate the thyroid, and that the result of this stimulation is an increase in its activity; neither is there any doubt but that thyroid extract can lower the threshold of the brain to stimuli. Thus we have established the reciprocal goading of the brain and of the thyroid—which, if continued, will physically impair the brain or the thyroid or both—or kill the patient by reason of the damage done to other organs. How may this reciprocal pathologic relation be broken? It may be broken on the brain side by raising the threshold of the brain by rest, diversion, removal of the environmental or pathologic causes; or this reciprocal interaction may be broken on the thyroid side by tying the vessels, breaking thereby the nerve as well as the vascular supply, or by excising a suitable portion of the gland.

This, in a general way, is the viewpoint of the surgeons of this country and, I am pleased to say, equally is it the viewpoint of many medical men who have followed the surgical results.

Last summer I visited fifteen surgical clinics in Germany and Austria and I found everywhere this disease was on a surgical footing. In such internal medicine clinics as those of von Noorden and Friedrich Mueller, the cases of Graves' disease that do not respond promptly to rest are routinely advised to undergo surgical treatment.

Now as to the end results. What may a patient reasonably expect from an operation? It depends upon whether the fire was extinguished when it began or whether the roof and the walls had crumbled, and it depends on whether or not the torch is to be reapplied to the parts remaining. When the disease is of long standing in patients of poor physical structure, and whose financial and social circumstances permit of no mitigation of the strain of life during the time of convalescence, the results are correspondingly impaired.

I know of no way of stating the precise results of operations in this disease—this protean disease of body-wide changes. If one were to state the effect of physical overtraining; of a mental breakdown of the overambitious student; the effect of nervous prostration of the overworked and worried business man, or if asked to state scientifically the end result of an overwhelming grief, how could it be done? Studying the end results of my patients, I may make several generalizations. No patient died of the disease after leaving the hospital; no patient was made worse by the operation; otherwise every patient was either benefited or cured.

Among the factors that influenced the end results were the environment of the patient, the freedom from nervous shocks, the means at hand for diversion, as well as the avoidance of strain, and *the elimination of all nervous shock at the time of operation.*

The improvement began usually the next day after the operation, and continued for from six months to two years.

I regard patients as cured when they are able to withstand nervous shocks, such as fright, disappointments, worry, grief, in a normal manner. I have found that the time required for a complete cure is dependent upon the environment of the patients. Automobiling, travel, sea voyages, nature-study, happier turns in the tide of life, are the ideals that facilitate the cure. I know of no class of patients who are so intensely grateful, who become such militant partisan advocates of the operative treatment of this disease as the cured cases. There may be hesitation on the part of practitioners to recommend surgical treatment for Graves' disease, but the cured patients share no such doubts. They are stronger advocates of operation than the most surgical surgeon. I may say in conclusion that the immediate operative risk is approaching that of operations for appendicitis; that all operative

recoveries are either improved or cured; that the extent of the cure depends largely on the environment and medical direction during the year following the operation. I know of no other class of patients whose relief is so deeply fundamental as that of these patients tortured by an everpresent pathologic emotional state.

What then is the surgical viewpoint? It is that every case of Graves' disease should be first given rest, real psychic rest, diverting rest; and if not relieved then an early surgical operation will relieve or cure. If the operation is timely the result is almost certain; but, as in operations for cancer, if late, the result depends on the amount of preventable damage already done; surgery offers to forge one of the links, frequently an indispensable link, in the chain of cure. The vast accumulation of clinical facts presented by surgery, showing the benefits of operation through diminishing the thyroid secretion, is to be compared with the assertion that the hyperplastic thyroid bears no relation to exophthalmic goitre.

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**The Mode of Infection in Epidemic Poliomyelitis.**—The theory of the nasal route as one path of the virus of epidemic poliomyelitis to and from the body appears at present to be fairly well justified. It seems probable that the nasal mucosa is one at least of the sources of infection to other organisms as well as a means of the entrance of the virus into the infected organism. The experimental disease can be produced by intranasal swabbing with active virus; and the latter has now repeatedly been demonstrated in the tonsils, the nasal mucous membrane and the nasal washings from fatal and acute cases. The possibility of producing the infection by the nasal application affords an opportunity to determine the precise manner in which microorganisms may enter the body through such mucous membranes. Do they first reach the blood-stream and through this the central nervous system, or does the virus ascend directly along the lymphatics that unite the nasal mucosa with the central meninges? Flexner and Clark have recently furnished an answer to this question at the Rockefeller Institute for Medical Research. It is known that the virus is present throughout the central nervous system in experimental poliomyelitis produced by any method of injection. The investigators therefore attempted to ascertain whether or not after an intranasal introduction the virus can be demonstrated equally early in all regions of the cord. The answer was definite. The infective agent passes from the nasal mucous membrane to the olfactory lobes and adjacent parts of the brain before it reaches the medulla or cord. This distribution, as the experimenters remark, is what we would expect were the ascent by the direct lymphatic path and not by the blood-stream. Were the dissemination by the latter route, one would anticipate early localization in those parts of the cord and medulla that possess an especial affinity for the virus. (*Jour. A. M. A.*)



## Some Remarks on the Thyroid Gland in its Relation to Basedow's Syndrome

By DAVID MARINE, M. D., Cleveland

My interest in exophthalmic goitre arises from the prevailing medical opinion that it is a thyroid disease, and as a student of the thyroid gland primarily my viewpoint must necessarily differ from that of most observers.

It is within the limits of fact to state that during the past twenty-five years fully one-half of what might be called thyroid literature concerns itself directly or indirectly with exophthalmic goitre. In spite of this enormous literature we must confess to an almost total ignorance of the essential nature of this malady. There is not a single great feature of this remarkable syndrome that is free from controversy. In the first place the name, "exophthalmic goitre," is a misnomer, as most observers admit that neither exophthalmos nor goitre (using the prevailing standards of clinical diagnosis) are constant features. Exophthalmos is present in something like 50 per cent of the cases if one takes the available statistics collectively, although individual observers' percentages vary from as low as 35 per cent to as high as 85 per cent. Goitre by anatomical standards, while usually present, may also be absent. Many students have suggested dropping the term "exophthalmic goitre" and substituting a noncommittal term like "Basedow syndrome." Barring questions of priority, I would subscribe to this attitude and even to the term until more facts are available. Basedow's syndrome (for it cannot be considered a clinical entity) is believed by some to be a primary thyroid disease, and by others a form of nervous exhaustion in which the thyroid function is either deranged secondarily or at most is a part of a generalized derangement of gland functions (polyglandular). It is my purpose to review briefly some of the objective data of the anatomy, physiology and pharmacology of the thyroid in its relation to this syndrome.

**Pathological Anatomy:** The changes are body-wide. The most striking are seen in the thyroid and lymphoid tissues. This does not mean that they are the most important, since in cataloguing anatomical changes one is governed largely by their prominence.

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*Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, Friday, October 11, 1912.*

**Lymphoid Tissues:** The thymus, lymph glands, spleen, tonsils, intestinal lymphoid apparatus and visceral lymphoid rests—all show some hyperplasia in the cases with definite symptoms. There are great variations in the degree of the overgrowth. Age of the patient, duration of the syndrome, etc., are modifying factors, but in general over 95 per cent of those cases coming to autopsy show lymphoid hyperplasia. This lymphoid hyperplasia is usually reflected in the peripheral blood by an increase in the lymphocytes and mononuclear elements and though long known it has during the last few years been more closely studied in the European clinics. It will be recalled that in status lymphaticus the same lymphoid changes occur, and some observers have preferred to speak of Basedow's syndrome *and* status lymphaticus, although pathologists generally have looked upon the lymphoid changes as integral parts of the pathological anatomy. The lymphoid overgrowth is not specific, as it is also found in myxedema, epilepsy, myasthenia gravis, rickets, osteomalacia, status lymphaticus, etc.

**Blood:** Mild degrees of chlorotic anemia are often associated with the syndrome. The white blood-cells are usually somewhat decreased—5,000 to 7,000 per cmm, and there is usually a relative lymphocytosis ranging from 25 per cent to as high as 60 per cent. According to Kottmann the coagulability of the blood is reduced. There are many exceptions to this statement and in most cases there is but little modification of the coagulation time.

**Muscles:** Fatty metamorphosis of the somatic muscles of the eye was first observed by von Recklinghausen, and Askanazy has shown that this change often effects all striped muscles of the body. Similar changes in the smooth muscles have not been observed. Possibly the general muscular weakness which is so characteristic a symptom may be brought into some relationship with the fatty change in the muscles.

**Liver:** Some degree of fibrosis is usually present in the cases coming to autopsy. This cirrhosis is of the atrophic type and associated with fatty changes in the liver cells.

**Pancreas:** Interstitial fibrosis and degeneration of the islands of Langerhans have been observed.

**Bone:** The changes are not marked. Several observers have noted the association of osteomalacia with the Basedow syndrome.

**Heart:** There is much confusion regarding the cardiac

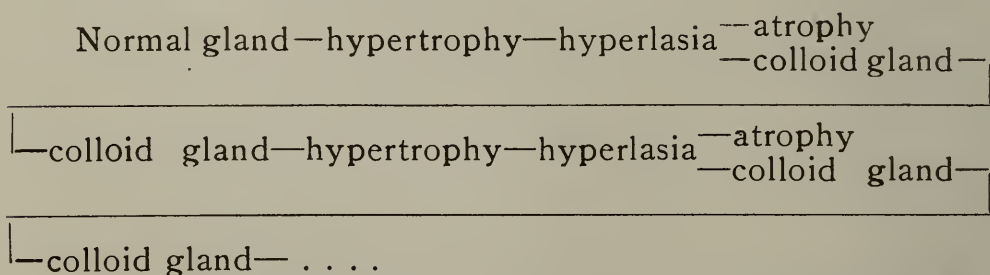
changes. With our present knowledge it seems necessary to make two groups: (1) true goitre heart, and (2) the heart of Basedow's syndrome. The true goitre heart is, so far as one can determine, an hypertrophy involving the whole cardiac musculature with corresponding enlargement of the cavities and great vessels to and from the thyroid area. This form occurs in association with hyperplasia of the thyroid and is found in all animals from fish to man. The most marked types are seen in the congenital myxedemas of infants, calves, lambs, pups, etc., with large goitres, of which I have seen several examples. The second form of goitre heart, that of Basedow's syndrome, is usually associated with the true goitre heart but there are in addition nervous disturbances (usually a loss of inhibitory control) and later disturbances in conductivity of the heart muscle, myocardial changes, etc., the significance of which is not yet clear.

**Central Nervous System:** No constant gross changes have been made out. It is probable that there are serious changes in the finer nutrition and structure of the cells resembling the well known fatigue or exhaustion changes described by Hodge, Dolley, Lugaro, Mann and others. Crile has recently reported such changes in a severe case of the Basedow syndrome. The sympathetic ganglia have been the seat of a variety of changes such as pigmentation, fibrosis and atrophy. Jaboulay, on the basis of these changes, has practiced extirpation of the middle cervical sympathetic ganglion for the cure of the syndrome.

**Ductless Glands:** The adrenal glands as a rule are but little altered. More recently a decrease in the chromaffin substance has been observed. The pituitary gland has been found normal, enlarged and also the seat of degenerative changes. The syndrome is occasionally seen in association with acromegaly. However, nothing indicating an essential association has been observed. The parathyroids are unaltered.

**Thyroid:** Here one finds a situation rarely paralleled in such an objective and seemingly simple a matter as the pathological anatomy, viz., there has been a complete cycle in our views. Virchow, in 1863, stated that there were neither constant nor specific changes. Following the Gauthier—Moebius hypothesis of 1886-7, that the syndrome was due to a thyroid hypersecretion, pathologists generally began to recognize relatively constant changes of the nature of an active hyperplasia. But during the last fifteen or twenty years as a result of the examination of more

extensive series of the glands in Basedow's syndrome, of the glands *in other clinical relations* and of the glands in other animals it has been found that a great variety of morphological changes may be present with the syndrome and that *similar changes may be present in a variety of other clinical associations*. Practically all extensive series of thyroids have shown highly inconstant changes. Thus, one may find the syndrome (as at present recognized) present with the thyroid normal, of which I have seen three examples and similar cases have been reported by Halstead and MacCallum, Handley, and others. Any degree of active hyperplasia may be present and this is the more common finding—about 70 per cent of the cases. Mild degrees of fibrosis and atrophy supervening in the active hyperplasias are often seen in the later stages of the syndrome. Colloid goitres (pure types) are often present. The syndrome is frequently described in association with adenomas and there are three cases on record where the syndrome was present with thyroid carcinoma. While it is a fact that all these types of changes have been seen in association with the syndrome, it is also a fact that the thyroid tends to undergo hyperplasia in connection with the syndrome and whether one finds a normal thyroid or an active hyperplasia or a colloid thyroid or a tumor, depends in part on the liberality in the diagnosis, on the stage and duration of the syndrome, and on the mode of treatment prior to operative removal of the gland. Thus iodine will not only prevent hyperplasia but also rapidly modify an existing hyperplasia in association with the syndrome. The thyroid then in Basedow's syndrome may exhibit all the morphological variations seen in other clinical associations of goitre and in other animals having the ductless thyroid. So far as can be determined at present the thyroid cell has but the one physiological cycle which may be represented schematically as follows:



The cells undergo this cycle whenever those biochemical disturbances in the animal's nutrition arise which excite the gland to increased activity irrespective of the clinical manifestations.

**Physiology:** Turning to the physiology of the gland in Basedow's syndrome we find, as one would expect, even a more confusing and controversial literature. In general, it has been found that the gland presents the same variety of reactions as does the gland of other clinical associations and of other animals as well. Thus, partial removal of the gland in animals tends to induce a compensatory hyperplasia of the remaining portion. (This reaction is modified by the amount of gland removed, the age of the animal, the food and the administration of iodine.) Cases have been reported, and I have observed two human cases, where partial removal of a simple goitre has been followed by a further enlargement of the remaining part. We have also all seen cases where the removal of one lobe was followed by a reduction in the size of the remaining lobe (for one or more reasons). Likewise, in the cases of Basedow's syndrome there are numerous case reports and most of us have personally observed (1) cases where, following the removal of one lobe, a distinct reduction in the size of the remaining lobe took place, and (2) cases where, following the removal of one lobe, further enlargement of the remaining lobe took place. It is now well known that the amount of thyroid removed in any case is but a minor factor in determining whether one will get or will not get further growth of the remaining portion. All the evidence points towards the view that this outcome is determined by the physiological needs of the animal for thyroid activity and these may be altered by a variety of means.

Iodine is a constant and necessary constituent of the normal ductless thyroid. It has been observed and generally confirmed that the percentage of iodine content varies with the amount of stainable colloid and inversely with the degree of active hyperplasia. That is, normal glands have the highest percentage of iodine content and marked hyperplasia the lowest. This general relation is true for the dog, sheep, pig, ox and man, both in the ordinary hyperplasias and in that associated with Basedow's syndrome. Experimentally it has been found in dogs, cats, and sheep, that iodine will prevent hyperplasia following partial removal of an amount of thyroid sufficient to otherwise insure hyperplasia. It has also been established experimentally that the administration of iodine to animals with marked hyperplasias quickly (two to four weeks) induces a marked change, of the nature of an involution to the colloid or resting stage. This fact

is admitted by all observers as being true also for the hyperplasias of man not associated with Basedow's syndrome. In the case of this syndrome, a general statement has prevailed claiming that not only were the thyroid changes in Basedow's syndrome different and distinct from those morphologically similar changes of other clinical associations, but that they will not react with iodine as do ordinary hyperplasias.

During the past six years I have had the opportunity of examining the thyroid anatomically in thirty-eight cases of Basedow's syndrome where to my knowledge iodine had been given. With one exception there has been a marked storage of iodine in the glands—resembling in all respects the storage that follows the use of iodine in ordinary hyperplasias, and an involution to the colloid state also resembling that seen in the simple hyperplasias of man and animals. So that, notwithstanding the possible criticisms that there are no experimentally complete observations to show that iodine will prevent further hyperplasia of the remaining part following partial removal of the thyroid of Basedow's syndrome, I feel that with all other data agreeing it can be stated that the reaction of the active hyperplasia in Basedow's syndrome is similar to that of hyperplasias in general. I would emphasize this iodine reaction as a specific biological reaction—no other substance is known to have such an action on the thyroid and it is constant throughout all animals having ductless glands.

**Pharmacology:** From the standpoint of the pharmacology of the thyroid much effort has been expended. It has been established that iodine in organic combination determines the only known activity of the substance, whether one uses as an indicator the acetonitrile reaction of Hunt, or the nitrogen excretion, or the therapeutic effect on active hyperplasias. In other words, markedly hyperplastic glands have little or no iodine and also exhibit little or no pharmacological activity while normal or colloid glands have high iodine contents and exhibit high pharmacological activities. Some observers have claimed to have produced Basedow's syndrome, including goitre, in dogs and in man by overfeeding desiccated thyroid. Such reports are now known to be erroneous, as thyroid tends to lessen and prevent thyroid growth. All the extensive researches with feeding desiccated thyroid have shown a uniform pharmacological action, viz., increased nitrogen and carbon dioxide excretion, increased oxygen intake, loss of weight, increased appetite, reduction in the size of the

thyroid and, in excessive doses, diarrhea, glycosuria, coma, and death. With the gland of the Basedow syndrome much work has been done by way of studying the effects of intravenous injections of extracts, but with generally negative results.

Recently some European observers have reopened this field and have reported rather startling results from the injection of Basedow's gland extracts. Thus Klose, and Lampe, Liesegang and Klose claim to have reproduced the syndrome in nervous fox terriers by injecting fresh (twenty to thirty minutes after the removal of the thyroid) Basedow gland extracts intravenously. These authors were also able to obtain a similar syndrome in susceptible dogs by injecting potassium iodid in small doses and on the basis of this have claimed that Basedow's syndrome is due to a masked iodine poisoning. Other observers have failed to obtain these results and Klose urges as a reason for this failure that they did not use the nervous fox terrier dogs. Later Baruch has claimed to have reproduced the syndrome by intravenous injections of extracts from many forms of goitre and also that the nervous fox terrier is not essential. Bircher has reported the experimental reproduction of Basedow's syndrome in dogs, including goitre, exophthalmos and lymphocytosis, by the introduction of human thymus into the peritoneal cavity. In the light of all the work and experiences of others with the Basedow thyroid it does not seem possible to accept such observations without reserve. They certainly need to be scrutinized with a critical eye.

Fonio, in Kocher's clinic, has reported his results from feeding Basedow's syndrome thyroid to patients with myxedema, using as standards of activity the nitrogen excretion and the lymphocyte count. He found that the activity of Basedow's thyroids varied with the iodine content, as is true of all other thyroid, or in other words, that Basedow's thyroid was no more and no less potent in the treatment of myxedema than other thyroid preparations of like iodine contents. I have had somewhat analogous results in Doctor Hoover's clinic from feeding large amounts of desiccated Basedow's glands to patients with classical Basedow's syndrome. Thus, feeding as high as eleven grams in eleven days induced no detectable change in the pulse-rate, body-weight, temperature or sugar tolerance. From this hasty summary of some of the major facts in the anatomy, physiology and pharmacology of the thyroid gland, one must conclude that we are

still a long way from establishing the thyroid as the major factor in Basedow's syndrome.

**Etiology:** If we turn to the etiological or underlying factors in the patient's history one is struck by the extraordinary variety of factors that may underlie the onset of the syndrome. Thus, infectious diseases, like typhoid fever, influenza, lues, rheumatism and tuberculosis, are not infrequently the forerunners of the syndrome. Certain occupations involving overwork and lack of physical exercise seem to predispose. Grave disappointment, worry, fright and other forms of prolonged and acute mental strain are common antecedents. In fact, one may say that almost any condition that induces a prolonged impairment of health and reduces the general resistance, if accompanied by mental strain, may be followed by the appearance of the syndrome, partial or complete.

**Therapy:** Finally, if one scans the forms of medical and surgical therapy that have been practiced in this syndrome, one is struck by the variety and the number of measures used and the earnestness with which the several authors urge their favorite measures. Drugs were formerly more extensively used than at present. Among those more strongly advocated and from the use of which favorable results have been reported are: digitalis, strophanthus, belladonna, strychnin, iodids, bromids, fluorids, arsenic, iron, quinin and phosphates. Of animal products, cod liver oil, bile, thyroid, thymus, spleen, adrenals, hypophysis, ovaries, rodagen, thyroidectin and cytotoxic sera have had ardent advocates. General and hygienic measures have been more widely used and with better results. Among which electricity in various forms, baths, climate, diets, mental and physical rest, are the more prominent. The Roentgen ray and radium have given encouraging results. Of the surgical measures partial thyroidectomy and arterial ligation are at present more commonly practiced. Removal of the sympathetic ganglia (middle cervical) is strongly recommended by Jaboulay. Of more indirect measures the removal of adenoids, tonsils, correcting nasal defects, operations on the uterus and adnexa and correcting eye defects have all favorably influenced the syndrome. After reviewing such a partial list, which I think is illustrative of the whole, it is debatable whether all these measures, apart from the indications in individual cases, do more than aid in bringing about and in applying appropriate forms of mental and physical



rest and diversion. For it is rest and the helpmates of rest plus the time interval that have constituted the great common factors of any successful plan of treatment. Certainly such varied elements of treatment and such varied results have so far not materially aided in the solution of this obscure syndrome.

### Summary

(1) No distinctive anatomical changes in the thyroid or other tissues have been made out. And one must raise the question whether the thyroid cycle as seen in Basedow's syndrome is qualitatively different from the similar thyroid cycles seen in myxedema, status lymphaticus, chlorosis, tuberculosis, etc.

(2) There have been no distinctive physiological or pharmacological characteristics made out, although the literature is at present very discordant.

(3) As far as the various forms of treatment have been tried, some have already been abandoned and others are still in the process of trial concerning which sufficient data are not available for unbiased judgment.

(4) We are in possession of more facts concerning the syndrome as at present recognized than can be harmonized with a primary thyroid hypothesis.

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### Vernal Conjunctivitis

By R. B. METZ, M. D., Assistant Surgeon to the Eye Clinic of Western Reserve University at The Lakeside Hospital, Cleveland.

The first mention of this disease was by Arlt, who in 1846 described it as a peculiar variety of eczematous conjunctivitis. Later Desmarres spoke of it as a pericorneal hypertrophy, von Graefe as gelatinous thickening of the limbus, and Hirschberg as phlyctena pallida. Saemisch in 1876 first emphasized the seasonal exacerbation, and to Horner is credited the discovery of the peculiar characters of the tarsal conjunctiva.

Spring catarrh is a chronic affection of the conjunctiva, which is most commonly bilateral, though Herbert<sup>1</sup>, Wood<sup>2</sup> and Beard<sup>3</sup> saw cases of involvement of but one eye. No portion of the conjunctiva is exempt from involvement in the process. Tarsal conjunctiva, retrotarsal and semilunar folds, and the bulbar conjunctiva may be affected, though it is most exceptional

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*Read at a meeting of the Ophthalmological and Oto-Laryngological Section of the Academy of Medicine, Friday, November 22, 1912.*

to find in one case the participation of the whole membrane throughout. Saemisch thought the retrotarsal and semilunar folds never participated, but Axenfeld and Rupprecht proved this incorrect for the retrotarsal folds. Seefelder<sup>4</sup> reported four cases in which the semilunar fold was involved to such an extent that at first glance it dominated the clinical aspect. More usual are the affections of the bulbar or the tarsal conjunctiva. In but a few cases are the changes in the tarsal and bulbar portions equally pronounced. Fuchs<sup>5</sup> states that changes in the tarsal conjunctiva, without those of the limbus, are more frequent than the contrary kind. However, Antonelli<sup>6</sup> considers the limbar form more common than the tarsal, and Trantas<sup>7</sup> in the sixty-five cases he last reported, found twelve showing the palpebral form, thirty-one the limbar, and twenty-two mixed.

Hypertrophy of the limbar conjunctiva occurs at either side of the cornea, but according to Haab<sup>8</sup> it may occasionally occur at the upper and lower portions. This thickened portion of the conjunctiva is semitransparent, of pinkish or brownish color, and gelatinous appearance. The surface may be smooth or uneven. There is great variation in the amount of the hypertrophy, and at times it may amount to no more than a persistent reddening of the eye ball, consisting of a coarse reticulate conjunctival injection combined with a distinct ciliary injection, as described by Fuchs<sup>5</sup>. Again the hypertrophy may be considerable, forming as in the case of Antonelli<sup>6</sup>, enormous limbar vegetations, the thickening attaining the size of a small raspberry.

Attention has been called by Trantas<sup>7</sup> to small whitish or yellowish-white spots in the pericorneal hypertrophy. They are not well seen without a loupe, but when this is used they give the impression of white colonies of microbes developed in a gelatin medium. Herbert<sup>1</sup> also speaks of these spots, and considers them characteristic of spring catarrh. They stain with fluorescein and thus stained are much easier to see. Occasionally, instead of the more usual bright greenish-yellow superficial spots, minute buried, buff-colored points are seen. It is always worth while to instill a few drops of fluorescein in cases of doubtful diagnosis. These spots are not confined strictly to the definitely thickened portion. They appeared in 50 per cent of the last series of sixty-six cases reported by Trantas<sup>9</sup>; were most frequent at the upper-external margin of the cornea, and were present in all stages of the disease. Their development is rapid, duration for about a

week, when they disappear and others appear. They are really minute epithelial vesicles, and are caused by degeneration of the epithelial downgrowths, which become absorbed leaving cystic cavities. The change in the conjunctiva of the upper lid is characterized by the formation of hard, flat papillae, which are greatly projecting, pale, and sharply outlined. They are tessellated, or pavement-like in appearance, and over the whole is a milky opacity. The lower lid shows the milky opacity. Again, the papillae of the upper tarsal conjunctiva may be quite small or absent, and only the bluish-white veil can be seen. However, even in the ocular type of the disease, the tarsal conjunctiva is practically never of quite normal smoothness, and there is a slight papillary roughness of the upper portion of the upper tarsus, slight thickening and lessened transparency. There is also, usually, some slight injection, and with a loupe small knuckles of vessels can be seen marking the site of papillae which are perhaps very minute. These facts may be employed in the diagnosis of doubtful limbar swelling.

Seefelder<sup>4</sup> reports four cases of involvement of the semi-lunar fold. In one, the tumor-like thickenings of these were most striking. They occupied the whole height of the palpebral fissure, and when the patient looked straight ahead, they rested as grayish lobes on the intensely injected ocular conjunctiva. The masses were tough and rigid.

A most striking thing in connection with spring catarrh is the nature of the secretion. This is usually scanty, mucous, or mucopurulent, collecting in threads in the retortarsal folds and on the adjoining membrane. It is characterized by the presence of numerous eosinophilic cells, the demonstration of which may be utilized for the diagnosis of doubtful cases. Secretion for examination may be obtained according to the method of Herbert<sup>1</sup>. If the upper lid is held everted for a minute or so, there will be formed a scanty, thin, filmy exudate on the tarsal conjunctiva. Such a film may be formed by exposure in acute conjunctivitis, but not in cases likely to be mistaken for spring catarrh. Repeated exposures may be needed in the least irritative forms and phases. In this membranous discharge, the presence of eosinophiles is characteristic. They are unevenly distributed, but in enormous numbers, and this finding is quite conclusive. It is important to take freshly formed exudate, because the

eosinophiles break up rapidly and the free granules are frequently not stained by some stains which may be employed. They may be well seen, however, if the specimen be simply stained with eosin, and then very lightly stained with methylene blue. Staining with Wright's stain shows the cells very well. In computing the proportion of eosinophiles, the epithelial cells should be ignored. It is the proportion to the total wandering cells that is striking. One must not mistake the nuclei of broken-up eosinophiles for lymphocytes.

In one case from the dispensary at the Lakeside Hospital, the percentage of eosinophiles in the secretion was 50, and in another 27.

In one case of Herbert's<sup>1</sup> with one eye practically normal and the exudate obtained only with difficulty, there were only a few eosinophiles, while the affected eye showed the characteristic excess in the secretion.

Infrequently there are some corneal complications. Fuchs<sup>5</sup> found the limbar growth extending into the transparent cornea for a short distance. Sometimes, parallel to the margin of the nodule, a narrow gray stria, like arcus senilis, is seen in the cornea. This is separated from the margin by a strip of transparent cornea, and remains permanently after the disappearance of the proliferations. Very rarely, the proliferations advance a greater distance into the cornea under the guise of a tissue which is like pannus, but which contains very few blood vessels, and hence is pale and gelatinous looking. This may actually cover the cornea. Trantas<sup>9</sup> saw the following: 1, Superficial lesions demonstrated by the use of fluorescein; 2, minute lesions of the corneal surface; 3, parenchymatous plaques in the cornea; 4, keratitis punctata profunda; 5, keratitis sclerosis totalis. Antonelli<sup>6</sup>, in his case of enormous limbar vegetations, describes the cornea as extensively involved. The pupillary area was surrounded by an opacity more and more dense toward the periphery. Vision with each eye was 3/10, and became still more impaired in spite of treatment. Posey<sup>10</sup> observed a corneal involvement in a patient who had suffered from spring catarrh since childhood. The cornea had become gradually affected, until the vision of the right eye was 1/40, and of the left eye 2/40. The corneae were surrounded by slightly elevated zones of yellowish-white tissue, and their transparency destroyed throughout by irregular opacities which seemed to be made up of a hyalin degen-

eration of reduplicated epithelial and subepithelial elements. The center of each cornea seemed avascular, but numerous small vessels extended over the limbus from the conjunctiva. Haab<sup>8</sup> notes that rarely the cornea may ulcerate.

The patients affected with spring conjunctivitis complain that with the first warm days of spring the eyes become red; that there is photophobia, lachrymation and itching, which latter symptom is constant and very annoying. Herbert<sup>1</sup> thinks that itchiness, or constant rubbing of the lids in young children is very suggestive. Usually the warmer the weather, the worse the discomfort of the patient. If in the summer there occur a few cool, rainy days, there is lessened discomfort. In the autumn the trouble diminishes, and usually in winter there is complete subsidence. In Bombay, Herbert<sup>1</sup> did not find marked seasonal variations. Even though there is marked diminution of the subjective symptoms in winter, the change in the growths is only slight usually. They may be a bit smaller in winter than in summer, but the chief difference is that the eyes are free from discoloration in winter, and injected in summer.

There can be no positive prognosis of duration. According to Fuchs<sup>5</sup>, the inflammation may return annually for three to five years, or as long as ten, or even twenty years, and finally subside without leaving marked traces of its presence. The cornea may, however, be extensively altered. The process is one of young persons. Trantas<sup>9</sup> saw a case in an eleven months old child, and another in a patient forty-two years of age. The greater number of his cases occurred at from ten to twenty years. Those cases at advanced years are mild and not characteristic. Males are most predisposed. In Herbert's<sup>1</sup> series of thirty-nine cases, there were but seven females. Trantas'<sup>9</sup> series of sixty-eight cases contained fifty-eight males. In the main the patients seem quite healthy, though some, according to Fuchs<sup>5</sup>, are pale, with lymphatic enlargements, particularly of the neck and lower jaw. Herbert<sup>11</sup> in 1903 stated that in six cases, in which the count was made, there was an increase of from 10 to 20 per cent of the total leukocytes. This increase is, however, not uncommon in the natives of India, and is not important. The white cell count of blood from two patients with spring catarrh, from the Lakeside Dispensary, was a normal one. In 1907 Herbert<sup>1</sup> gave the results of a differential enumeration of the leukocytes, the blood showing a slight or moderate eosinophilia. The percentage varied from

3.5 to 17.4. In three patients examined after considerable intervals, there was variation in the eosinophilia corresponding with the changes in the condition of the conjunctiva. But in general there was no correspondence between the abnormality of the blood and the degree of conjunctival proliferation. This lack of correspondence may possibly be due to the implication of other mucous membranes than the conjunctiva. It is of course possible that the altered blood picture is due to other causes, though it was not found in other conjunctival conditions.

As to cause—atmospheric heat, ultraviolet rays, and bacteria, have each had their supporters.

Anatomically, the hypertrophy of the limbus is essentially the same as that of the papillae, but the epithelial thickening of the limbus has been more frequently observed than fibrous overgrowth. Parsons<sup>12</sup> suggests that this may be due to incomplete removal, and Antonelli<sup>6</sup> that the mucous membrane and connective tissue participate to a varying degree in different cases. The epithelium is usually three times the common thickness, having from thirty to forty layers of cells. The normal papillae are accentuated, many of the superficial cells have lost their nuclei and are flattened, but actual cornification has not been observed. Schiele<sup>13</sup>, by the use of iodine, deduced the presence of glycogen in the epithelial cells. Downgrowths of the epithelium into the connective tissue occur. These are tubular or solid, conical, cord-like, or club-shaped, and sometimes branching. These often show nests and resemble epithelioma, but the basement membrane is always intact. The downgrowths are constantly being absorbed, forming cavities which fill with eosinophiles, and these cells are erupted at the surface from a point corresponding to the absorbed epithelium. These cavities are the spots in the limbar thickening, which stain with fluorescein, and which are well seen with a loupe. They are considered by Trantas<sup>7</sup> as pathognomonic of vernal catarrh.

The connective tissue of the limbus also proliferates extensively. Parsons<sup>12</sup> describes it as being loosely arranged, and as containing connective tissue cells, embryonic connective tissue cells, and lymphocytes. As the growth progresses it becomes more compact. Herbert<sup>11</sup> found, in addition, an infiltrate with eosinophiles, and Seefelder<sup>4</sup> found the infiltrate to consist almost exclusively of eosinophiles and plasma cells. This localized infiltration with eosinophiles is most rare and striking, and can be

compared only with that which occurs in pemphigus of the skin. It is only very marked in the more irritable stage. Donvers<sup>14</sup> found mast cells in one case.

The epithelium of the papillae of the tarsal conjunctiva is thickened to five or more layers, causing the milky film appearance. Epithelial plugs descend some distance into the stroma. The papillae resemble in shape the circumvallate papillae of the tongue. In vertical section, there is found a mass of dense, often hyalin fibrous tissue. In this, Parsons<sup>12</sup> found comparatively few round and spindle cells, and scattered blood vessels. The growths were rather of the nature of fibromata, than papillomata. The hyalin layer intensifies the pallor. In the deeper layers, Fuchs<sup>5</sup> noted a somewhat marked infiltration, mainly with plasma cells. Seefelder<sup>4</sup> found in excised pieces of semilunar fold marked infiltration with plasma cells, eosinophiles, mast cells, lymphocytes, and fibroblasts.

Peculiar changes in the intima of vessels were observed by Reis<sup>15</sup>, chiefly in the precapillary blood vessels of the subtarsal arch. There was marked hyperplastic thickening of the intima, and separation of the endothelium of the intima from the elastic sheet by vacuoles; swelling and sometimes excessive rarefaction of the separated cells, which may lead to more or less complete closure of the lumen. These changes greatly resemble the vacuolizing degeneration of the intima, due, according to Birsch-Hirschfeld, to the influence of radiation (Roentgen rays, radium, high frequency currents) on the endothelium of the intima. This strongly favors the assumption of the influence of ultraviolet rays in the etiology of spring catarrh. Gabrielides<sup>16</sup> reports three cases of vernal catarrh which came on in winter in consequence of exposure to cold and bright light, giving farther support to the theory that chemical rays of the sunlight are responsible. As against atmospheric heat is Herbert's<sup>11</sup> observation in his series of thirty-nine cases, that none applied to him in May, the hottest month; most came in July, the wettest month in Bombay. As regards a bacterial origin of vernal catarrh, Axenfeld<sup>17</sup> admits the possibility of some still unknown organism. But even in secreting cases, no findings of any etiological value have been made. Saemisch is of the same opinion. At most, the well known conjunctival saprophytes are found. As yet, the etiological factor is unproved.

In certain localities the process is more frequent. Trantas' finds it so in Turkey, he having 185 cases among 25,400 patients. The percentage was greater in his private practice than in his clinical practice. In Bombay, Herbert<sup>11</sup> thinks that possibly the tissue changes are more advanced than in temperate climates.

The nasal mucous membrane often appears a little thickened in these cases, with an excess of mucous secretion. Herbert<sup>1</sup> obtained fresh mucus after syringing the nasal cavity, and this sometimes contained eosinophiles. Two of his women patients gave some history of asthma. One of these was said to have an eosinophilia of over 40 per cent during an attack of asthma, though with the eye affection only 14 per cent was found. He believes the association of spring catarrh and bronchial asthma would be more frequent, but for the youth of most spring catarrhal patients. Axenfeld<sup>9</sup> called attention to the close resemblance of the secretion of spring catarrh to that of bronchial asthma.

The limbar form may be differentiated from phlyctens by the fact that the growth never ulcerates, as do phlyctens. The differentiation from trachoma can be made by the secretion, which contains great numbers of eosinophiles in spring catarrh and does not contain these cells in trachoma. Microscopically, in the trachoma granule, the chief thing is the infiltration with lymphocytes; in spring catarrh connective tissue proliferation is the important change, with some cell infiltration. The conjunctivitis of hay fever may return every spring, and would have to be differentiated from vernal catarrh. The former lasts but a few weeks, while the latter lasts throughout the warm season. There may be difficulty in distinguishing the inflammation occurring in elderly persons from incipient epithelioma, there being the same preponderance of epithelial elements and tendency to send down long villous processes into the connective tissue.

In the treatment of this condition, protection of the eyes from light by the wearing of tinted lenses is of acknowledged advantage. For this purpose, euphos glass would seem best, as it absorbs the ultraviolet rays, which smoked and amber glass fail to do. These lenses should be worn from the beginning of the first symptom in spring. More convenient and efficient, possibly, would be the instillation into the conjunctival sac of some chemical means for the absorption of ultraviolet rays. Such a substance is the monoxyderivate of aesculin (obtained from the horse



chestnut) and recommended by Unna for the protection of the skin. Ruhemann has employed, in the eye, a solution of this substance, which he called *Aqua Zeozoni*. He reports that instilling it into the conjunctival sac three or four times daily causes no irritation or damage to the cornea even when used for months or even a year. It prevented continuously the dazzling effects of bright light even when the pupils were widely dilated by atropin. He concludes that a 0.3 per cent of *Aqua Zeozoni* is efficient in preventing dazzling by light which contains too many ultraviolet rays, especially sunlight, and that in working in a very bright light a 0.5 per cent solution may be necessary. Alt<sup>18</sup>, receiving the suggestion from Ruhemann's investigations, has experimented with this solution, and though he has as yet made no detailed report, he is convinced of its value in absorbing ultraviolet rays. No record of the employment of this solution in spring catarrh has been found, but it would seem to offer at least as great efficiency, and certainly greater advantage than glasses for shading the eyes from ultraviolet rays.

Some authors hold that adrenalin is curative of the process, while other observers have not seen certain benefit arising from its use. The effects obtained from the use of astringents are in general disappointing. Some favorable reports have been made regarding the use of yellow ointment. Jocqs<sup>19</sup> treated a lid case by making a number of deep scarifications, and giving every day digital massage with yellow ointment. The scarifications were repeated. This treatment was long, but the cure complete. He has had subsequent success in the employment of the same method, though the same good results have not been reported by others.

The results following the excision of the growths and of cautery have been by no means constant. Recurrences have been frequent.

Patients are recommended to keep cool in summer, to take cool baths, or to reside in the mountains. Iron and arsenic have been prescribed for use internally. These general measures, as do most of those employed locally, do no more than palliate. As would be expected, in consideration of a process of this nature, which is so unresponsive to treatment, investigators tried the X-ray, but the results were disappointing. While the treatment was of a certain value, yet it was by no means curative.

Very brilliant results have, however, attended the employment of radium, and at the present there seems no other method of treatment which can be so relied upon for almost certain curative effects, as the exposure to its rays. Davidson and Lawson<sup>20</sup> have treated many cases with radium with such excellent results that they consider that it acts as a specific cure. Ryerson<sup>21</sup> has had the same curative results from this method, as has Turner, whom he quotes. Although time sufficient has been allowed to elapse before reports were made, no recurrences have been seen, and it would seem clear, therefore, that in radium we have a means for the cure of a process most resistant to all other treatment which has been used.

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### The Actions of Caffein

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The matter here presented consists of a resumé of several important researches on the pharmacological action of caffein. The various results obtained differ in many respects from the statements made concerning the actions of caffein in the older

works on pharmacology and therapeutics. Particularly noteworthy are the results of the investigations on the circulation which, while not new in all particulars, permit a more plausible explanation of the therapeutic results observed in clinical practice. The work on detoxication is entirely new. That reported on psychic effects is the most exhaustive since that of Kraepelin in 1892. The action of drugs in pathological conditions is daily receiving more attention than formerly.

It would be unprofitable to discuss here the results of the older investigators as well as the numerous theories given as the explanations of caffein actions. Therefore, the results have been summarized under the following headings with the hope that it will furnish a concise yet sufficiently detailed account of the actions of caffein for those who may be interested.

**Psychic Effects:** Kraepelin<sup>1</sup> was among the first to make scientific observations with caffein on psychic processes. He found the so-called "*Wahlreaction*" (the time required for selection) to be shortened and the word and association reactions at first shortened, but later inhibited. Tea seemed to increase the ability to read rapidly and seemed to facilitate muscular work. The results obtained were rather conflicting and the number of experiments so small that he felt that no definite conclusions could be drawn.

Recently, Hollingsworth<sup>2</sup> has undertaken studies in this direction. The object was to determine the qualitative and quantitative effects of caffein on a wide range of mental and motor processes in a number of individuals (sixteen) over a long period of time (forty days). Various factors influencing these processes were considered. The alkaloid was used in capsules and solutions and compared with blanks closely imitating the taste and color of the caffein preparations. A variety of tests was used some of which were steadiness, tapping, coordination, typewriting, color-naming, calculation, cancellation, quality and amount of sleep, good general health and feeling of well being.

The majority of these tests were attended with acceleration of the reactions (stimulation) in the beginning, but later this was followed by retardation. Some of the results are as follows: Small quantities of caffein stimulate coordination; medium and large doses retard it. The speed of typewriting is quickened by small doses (one to two grains); retarded by large doses. Small doses produce a retardation of discrimination while large

doses stimulate it. One to four grains in pure form or in syrup do not disturb sleep. The disturbance with sleep is greatest when caffeine is taken into an empty stomach and on successive days. It did not depend on previous caffeine habits of the individual.

As to the effects on general health and feeling of well being, most of the subjects attributed more or less strain directly to the strenuous character of the tests themselves. Tendency to headache, nervousness, dizziness, feverishness, and occasional sleeplessness were distributed fairly uniformly throughout the squad. The two chief factors which modified the degree of caffeine actions with respect to the performance of the tests are body-weight and conditions of administration, such as time of day and the abstinence from and taking of food.

The character of these experiments has been called into question<sup>3</sup>, but Hollingsworth's reply<sup>4</sup> seems satisfactory. The experiments appear to have been well controlled and performed as scientifically as possible.

**Effect on Muscle:** In experiments on the excitation of rigor in frog's muscle by caffeine, Ransom<sup>5</sup> finds that this phenomenon is accompanied by the formation of lactic acid, which disappears in the presence of oxygen. Diastase is also present in the saline into which frogs' legs are immersed. This rigor, therefore, closely resembles *rigor mortis*.

According to Wood<sup>6</sup>, caffeine increases the vigor of frog muscle, and enables it to work more economically without producing secondary depression. The same observer noted in four subjects, whose "knee jerk" was studied by means of the Lombard apparatus, that caffeine increases the vigor of this reflex beginning about twenty minutes after ingestion of the drug, reaching the maximum in forty to sixty minutes, and remaining above normal throughout the experiment. This effect is justly attributed to heightened functional activity in the reflex centers of the spinal cord rather than to heightened irritability of muscle.

**Respiration:** The observations on the persistent effects of caffeine in dogs indicate that the respiration is progressively stimulated with an increase of dosage from 20 to 120 milligrams per kilo<sup>2</sup>.

**Blood-Pressure Effects:** The early intravenous injections of caffeine lead to peripheral vasodilatation (Sollmann and Pilcher<sup>7</sup>). There is a primary fall of blood-pressure followed by recovery and often a small rise; and a fall of the oncometer

(decrease in organ volume by vasoconstriction), followed by a large rise (increase in organ volume by vasodilatation) which usually outlasts the blood-pressure. These effects occur simultaneously with a momentary myocardial depression succeeded by myocardial stimulation.

As the total dosage reaches 20 to 150 milligrams per kilo a peripheral vasomotor paralysis results. The blood-pressure falls to a constant level of 50 to 70 millimeters, further doses producing little or no effect, and there is a fall of the oncometer (decrease in organ volume from vasomotor exhaustion).

Salant<sup>8</sup> also observed a fall of blood-pressure after intravenous doses of 15 to 25 milligrams per kilo. This fall amounts to about 7 to 25 per cent in most cases and is transitory, although in some animals it remains unchanged. Rarely, a moderate rise occurs. Furthermore, caffein aids the action of the following vasodilators: nitrites, acetanilid, ethyl alcohol and amyl alcohol. The toxicity of barium chlorid is increased.

The early fall of blood-pressure does not occur with modes of administration other than by the intravenous route<sup>9</sup>. Wood's<sup>9</sup> observation that therapeutic doses of caffein in man cause some elevation of the blood-pressure owing to a slight increase in force of cardiac contraction is confirmative of older investigations.

**Heart:** As noted above, when repeated injections are given, the earlier doses of caffein lead to a momentary myocardial depression followed by stimulation. Cardiac depression occurs as the total dosage reaches 20 to 150 milligrams per kilo, and the heart-rate reaches its maximum and becomes irregular. An increase of dosage above 150 milligrams per kilo produces considerable irregularity, and sudden cardiac failure with marked dilatation may supervene at any time.

Pilcher<sup>10</sup> confirmed and amplified these results in experiments on the ventricles of dogs with the use of the cardioplethysmographs of Y. Henderson and Cushny used for recording the changes in volume. With small doses of caffein (not exceeding 10 milligrams per kilo), the cardiac tone remains unaltered during the acute fall of blood-pressure, but with larger doses, it becomes diminished. After recovery from the momentary disturbance of the intravenous injection, the conditions of the heart are as follows: After small doses of caffein (up to 20 milligrams per kilo) there is a rise in tone with a moderate increase in rate and usually no change in the amplitude of the excursions. With

larger doses there is a diminution of tone, increased rate and diminished amplitude of excursions.

Working with dogs in which the dosage of caffeine corresponded to those ordinarily used in man, Wood<sup>6</sup> observes a slowing of the pulse-rate which, however, is insignificant in comparison to the influence of such drugs as digitalis or veratrin. In human beings no marked effect on the heart rate was observed; if any change at all, perhaps a retardation. Large doses of caffeine increase the rate.

The studies on the circulatory system indicate how caffeine acts on the heart and blood-vessels, producing cardiac stimulation and vasodilation respectively. This leads to an increased mass movement of blood and explains the beneficial therapeutic effects from moderate doses of caffeine in circulatory diseases and in promoting diuresis. Through vasodilatation, desirable nutrition is supplied to the peripheral organs; by cardiac stimulation, a greater volume of fluid to the kidney for urine formation. This simultaneous action of caffeine on the heart and blood vessels renders superfluous the assumption of any other mechanism in explanation of the therapeutic effects.

**Excretion:** The excretion of caffeine by herbivora (rabbits and guinea-pigs) differs quantitatively from that of carnivora (dogs and cats). The influence of various factors, such as mode of administration, dosage and diet, on the excretion and its rate was studied by Salant and Rieger<sup>11</sup>. Administered subcutaneously, *per os* or intramuscularly, caffeine is eliminated by all animals in part unchanged in the urine, alimentary canal and bile. Approximately 6 to 10 per cent of the quantity introduced is recovered in the urine of herbivora as against little over 1 per cent in carnivora. In carnivora, caffeine is found in the urine fifteen to forty minutes after its subcutaneous injection, the greater part being eliminated during the first twenty-four hours, only small quantities being found in the urine later. The excretion into the alimentary tract of the herbivora is quite marked, being increased more on an oat diet than on a carrot diet and the presence of small quantities in the alimentary tract at the end of forty-eight hours points to its reabsorption into the circulation. The increased excretion of caffeine in the urine of herbivora while on a diet of carrots as compared with that after feeding of oats or hay was considered to be due to increased diuresis when carrots were eaten.

**Toxicity:** This was investigated by Salant and Rieger<sup>13 14</sup> in several different species of animals. The toxicity is 15 to 20 per cent greater by subcutaneous injection than by mouth; about one-half of this when given peritoneally. Intramuscularly, the toxicity is 30 per cent greater than subcutaneously. White or black rabbits are less resistant to caffeine than grey rabbits. Cats are less resistant to caffeine than guinea-pigs or rabbits. For dogs the minimum fatal dose is about the same as for the cat; the pigeon approached more nearly the guinea-pig.

Certain factors are far more important than zoological differences. For instance, individuality, season and age are factors to be reckoned with. Young animals are more resistant than older ones. Differences in diet do not influence the resistance of rabbits and guinea-pigs, but a low protein diet tends to decrease the resistance to caffeine in dogs and a milk diet does the same for young growing dogs. Symptoms of gastrointestinal disturbances are especially marked in dogs after caffeine on a low protein diet. Glycosuria occurs in rabbits and guinea-pigs when caffeine is given in sufficient amounts.

After fatal acute intoxications, the following conditions are found at autopsy. The chief lesions are confined to the gastrointestinal tract and consist of edema and injection of the intestines, enteritis, gastritis and petechial hemorrhages in the colonic and gastric mucosae. Engorgement of the liver and spleen and congestion of the renal cortex are frequent. These lesions occur practically in all experimental animals.

In their studies on chronic caffeine intoxication in rabbits, dogs and cats, Salant and Rieger<sup>17</sup> observed that doses too small to produce acute symptoms are sufficient to produce effects on the nutrition of the animal, such as loss of flesh and strength. In fatal cases, autopsy reveals inflammation and ulceration of the intestines and especially of the stomach, which is similar to the conditions found in acute intoxications although not as extensive. Dogs frequently exhibit symptoms of diarrhea and intestinal putrefaction. Resistance to caffeine is markedly diminished in rabbits starved four to five days.

The same observers conclude that there is an increased resistance to caffeine after repeated administration of gradually increasing doses. For instance, cats can survive quantities 60 to 70 per cent greater than the average fatal dose, dogs 30 to 33 per cent and rabbits 15 to 20 per cent.

**Detoxication:** The passage of caffeine through the body results in a loss of its methyl groups, called demethylation, diminishing thereby its activity and toxicity. Salant and his coworkers note that the elimination of unchanged caffeine is inverse to its demethylation. In carnivora, owing to diminished excretion, larger amounts of caffeine are demethylated than in herbivora. These authors also observed that caffeine is more toxic for carnivora than for herbivora and conclude that the resistance to caffeine is inverse to its demethylation, the demethylation (detoxication by decomposition) being more active in those organisms for which the drug is more toxic.

It was noted by Salant and Phelps<sup>14</sup> that demethylation is increased in pregnancy.

**Action of Caffeine in Pathological Conditions:** It is interesting to note that in certain pathological conditions the toxicity of caffeine is increased<sup>17</sup>. For instance, rabbits with coccidiosis of the liver are killed by comparatively small doses; so are poorly nourished rabbits and animals with ulceration of the rectum. Pneumonia in cats increases the toxicity. Hemorrhagic pericarditis in a dog reduces the fatal dose.

Salant and Phelps<sup>14</sup> found that demethylation is retarded for both caffeine and theobromin in chronic alcoholism. This persists for several days after withdrawal of the alcohol.

In a study on the antagonism and synergism of caffeine and alcohol in cats, Pilcher<sup>15</sup> obtained some very interesting results. Of several factors involved, evidently two are of great importance, namely, dosage and conditions of administration, i. e., whether the drugs are given singly or combined. Caffeine alone in large doses produces practically the opposite nervous effects of alcohol, namely, wakefulness and increased irritability; with fatal doses more or less excitement. Alcoholic narcosis due to small or moderate doses is lessened by small or moderate doses of caffeine, but it is intensified when moderate doses of alcohol are combined with large doses of caffeine or large doses of alcohol with small doses of caffeine. Caffeine excitement is not markedly relieved by alcohol.

The effect of alcohol on reflexes is opposite that of caffeine, which exaggerates them, increasing with the dose. Caffeine convulsions are not prevented by moderate doses of alcohol.

Alcohol increases the toxicity of caffeine, while caffeine does not increase the toxicity of alcohol, the synergism being one-sided.



Death is cardiac, the alcohol possibly rendering the heart more susceptible to caffein poisoning.

In small doses, both drugs produce variable effects on the pulse rate; large doses of alcohol slowing, while moderate and large doses of caffein give a maximal quickening. Even large doses do not cause arrhythmias. Small doses of both drugs combined cause a greater quickening of the pulse. Moderate doses of alcohol lessen the quickening produced by moderate doses of caffein. Cardiac irregularity is produced when moderate doses of alcohol are combined with moderate to large doses of caffein.

Small or moderate doses of caffein and alcohol combined have no effect on body temperature, but larger doses of caffein counteract the fall produced by smaller doses of alcohol. With large doses of alcohol, caffein in all doses increases the fall.

Caffein in moderate to large doses only progressively increases the respiration. With the drugs combined, the stimulant effects of alcohol predominate.

The following generalization seemed justifiable. "When small doses of caffein and alcohol are combined, each drug produces qualitatively its ordinary effects, but when large doses of the two drugs are combined the effects of the stimulant drug tend to be reversed, resulting in greater depression." This indicates that caffein is useful in minor grades of alcoholism, but it should engender caution in the use of caffein as an antidote in severe alcoholic intoxication and in the treatment of cardiac diseases.

**Caffeinated Beverages:** It is well known that caffein exists not only in coffee and tea, but also in certain widely advertised beverages. Such a product is "Coca Cola." It is reported to contain 0.92 to 1.3 grains of caffein in one fluid ounce. This would correspond to the caffein content of about three cups of coffee. The product was investigated by the Federal Government about a year ago. The contention was made by the Government that caffein in "Coca Cola" was an added ingredient; that caffein was and is a poisonous ingredient rendering said food product injurious to health. It was further charged that it was misbranded; that it was represented as "Coca Cola," indicating that it was a product made from coca and cola when in point of fact the quantities of coca and cola in it were insignificant and negligible<sup>19</sup>.

The interstate commerce in "Coca Cola" places it under the scope of the Pure Food and Drugs Law. The suit which was instituted by the Federal authorities against the Coca Cola Com-

pany resulted in a loss because the court upheld the manufacturer in his contention that caffeine is not an added substance, hence it does not come under the scope of the law; that "Coca Cola" was not a distinctive name, therefore not an imitation of another article.

Formerly this beverage contained detectable traces of cocaine. This was due to the use of whole coca leaves. In order to avoid the presence of this alkaloid, the manufacturer has resorted to the use of the exhausted coca leaves, which contain alkaloids other than cocaine about whose actions very little is known, and which were therefore not attacked by the Government. The objection of the law is to the existence of a not inconsiderable quantity of caffeine in the finished product.

In this case, as so often before, experts and medical men disagreed. For instance, well qualified experts gave the opinions that caffeine is deleterious to health when small quantities are used over long periods of time, but there were those with equally good qualifications who gave opinions entirely to the contrary. It seems a pity that the real points at issue did not come up during the proceedings of the case and that no decision could be reached as to whether the prolonged use of "Coca Cola" is deleterious to health or not.

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# The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and  
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

THE OFFICIAL ORGAN OF THE ACADEMY OF MEDICINE OF CLEVELAND

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2318 PROSPECT AVENUE

Entered March 7, 1902, as Second-Class Matter, Post-Office at Cleveland, Ohio, under  
Act of Congress of March 3, 1879.

Organized January 20, 1902

Capital Stock \$6,000

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## EDITORIAL

### Vaccination and Smallpox Epidemics

The recent report of the School Medical Inspector shows that there are over 20,000 children in the schools who have never been vaccinated. This is important in itself, but in addition the daily papers misquote Doctor Ashmun, the President of the School Board to the effect that physicians have progressively less belief in the efficacy of vaccination as a preventive. While no one acquainted with Doctor Ashmun would believe that he had made such a statement, there are many less well informed who have undoubtedly read and accepted the statement as official, and the

profession should see that their patients are properly informed. An unvaccinated population of over 20,000 among persons of school age means that many adults are equally unprotected, and that an epidemic of smallpox will find fertile soil for its development. The memory of man is truly brief. It is only ten years since the close of an epidemic costing the city over \$300,000, and incidentally resulting in some 250 deaths. It is only two years since the close of a smaller epidemic which would have reached larger proportions but for the prompt and vigorous action of the Board of Health, and yet in spite of these examples, the presence of this large unprotected population is apparently looked on with equanimity, not to say cheerfulness. Let us refresh our memory as regards these two epidemics. In 1901 there was an extensive outbreak of a mild type, during which there was no serious attempt at general vaccination. As a result the people were not protected and in 1902 a far more serious epidemic occurred. We cannot do better than quote from the annual report of the Health Office for 1902. The italics are our own :

“It was the smallpox we read about, that terrible scourge which struck terror into the former generations. Its contagious nature showed itself everywhere. *One case if not promptly reported to the health office and removed to the hospital, would invariably infect the whole neighborhood.* Its severity manifested itself even in the milder cases, while confluent cases almost without exception developed hemorrhages during the pustular stage. We had some thirty cases of black smallpox, all of which were fatal. Of the 1,248 cases, 224 died, a death rate of 17.95%. \* \* \* At the Mayor’s request, a meeting of physicians was held \* \* \* to consider the smallpox situation. \* \* \* Vaccination was recommended on all sides but the people were not prone to get vaccinated. \* \* \* Wholesale vaccination was finally effected by the action of the School Council and the help of the Chamber of Commerce. *The School Council amended the vaccination clause, making vaccination a conditio sine qua non for attending school* and giving the health officer the whole control of the matter. Without this amendment the schools could not have been opened last fall. The situation was too critical. With it the opening of the schools helped greatly to exterminate smallpox. *Every school, public and private, was put in charge of a physician.* \* \* \* *The doctors worked with a will, and if*

*anything was done thoroughly and conscientiously in this city it was the vaccination of all teachers and pupils last fall. \* \* \**

Through (the influence of the Chamber of Commerce) the employers prevailed on their employes to get vaccinated. Also to have every one of their family vaccinated. The consequence was that the people got vaccinated by tens of thousands. Men who formerly spurned the vaccinator from their door, came now to his office. \* \* \* The city paid for 195,000 vaccinations. Physicians were paid for successful vaccinations only. \* \* \*"

We quote thus at length to show the conditions at that time. The previous census taken less than two years previously, showed a population of some 380,000, and the fact that nearly 200,000 vaccinations were *successful* shows the extent of the unprotected, over one-half of all the inhabitants. The immediate result was that the epidemic disappeared, and during the next two years there were less than 150 cases, most of the serious ones occurring in the beginning of 1903 in the termination of the 1902 epidemic. Following this period there were no epidemics until 1910, when an outbreak occurred in the southeastern part of the city which threatened to spread over the whole community. This was met vigorously, all cases and contacts were at once isolated and 55,000 *school children were vaccinated*. It was reported to the Board of Health that in some of the schools where the majority of the children were of recent importation, there were practically one hundred per cent of takes, showing the almost complete lack of protection through nonenforcement of the rulings of the Board. In addition to this school vaccination, on the basis of the reported sales of the vaccine manufacturers there were some 80,000 persons vaccinated by physicians, a total of about 135,000 in all. The epidemic on account of this prompt action was checked and only sixty-three cases actually came down with the disease, of whom ten died, a rate of about 16 per cent. Since then there have been no outbreaks, but the population has largely increased, some 20,000 to 25,000 new children have entered the schools, and we now receive the official report that there are over 20,000 unprotected. It is therefore clear that the ruling of the Board is enforced only when there has already been an outbreak, and when a varying proportion of the citizens have been disfigured for life.

The efficacy of vaccination has been dealt with at length in the pamphlet on that subject published by the American Medical Association in 1909 and readily accessible. One or two quo-

tations from this and other articles may, however, be interesting. "In 1905 and 1906 the enormous number of 3,094,635 vaccinations were performed (in the Philippines) \* \* \* Doctor Victor G. Heiser, Director of Health in the Islands, states: 'In the provinces where heretofore there have been more than 6,000 deaths annually from smallpox, it is satisfactory to report, since the completion of vaccination in these provinces more than a year ago, not a single death from smallpox has been reported.'" In 1911 Heiser again reports—"A person afflicted with smallpox was transferred to \* \* \* a small isolated island \* \* \* the inhabitants of which have not been satisfactorily vaccinated. \* \* \* Net result: Community of 2,000 population; 1,000 unvaccinated persons contract smallpox; 400 die, 800 are protected by vaccination; no cases occur after incubation period was passed; no deaths (among vaccinated) occur; the remaining 200 are semi-civilized and fled from the vaccinators and their condition is unknown." Villoldo in Cuba reports, in 1911; 265,000 persons were vaccinated from September, 1901, to January, 1902. The result of this work was that by the end of the year 1901 Cuba was free from smallpox. The disease has not reappeared up to this date and *vaccination has been continued at the rate of from 22,000 to 80,000 yearly.* It is now ten years since smallpox was eradicated from the island, and the Cuban sanitary department is preparing a more stringent vaccination law in order to *insure the continuance of a practice which has been attended with such good results.* Kübler, in 1901, says: "On only two occasions since 1874 has a death from smallpox occurred in the Prussian army," (in which vaccination and revaccination are enforced). "In well vaccinated Germany but one person a year in every million of population died of smallpox." On the other hand in the registration area of the United States, with a population about the size of Germany's, the rate was more than seven to the million, a demonstration of the laxity of the vaccination laws.

In our own large epidemic of 1902, of some 1,200 cases personally seen, less than one per cent had been vaccinated within ten years, and nearly all of these had very light attacks, with no fatal cases. Of forty-two cases autopsied, not one showed vaccination scars or gave a history of vaccination, except one man who was vaccinated the day of admission. In the more recent epidemic of 1910 all the victims were unvaccinated with the exception of one who had been vaccinated in childhood.

It is clear then that it has been shown in Cleveland as elsewhere that vaccination protects against smallpox and that the severity and duration of an epidemic will depend largely on the proportion of the unvaccinated. After each outbreak there is a spasmodic effort at efficiency, which then dies out until the development of enough unvaccinated allows the disease to get hold when introduced from outside. It is then eradicated at a large expense in money, in disfigurement and blindness and in lives. Is this necessary or have we a remedy at hand? The school children of today are the adults of tomorrow. All children must attend school and we are able to find if they have been protected. If all children are vaccinated, and are not admitted to the school until this has been done, there will be an ever decreasing proportion of the residents who are unprotected. The newcomers will have at least the younger members of the family vaccinated, and the example will in many cases be sufficient to stimulate the parents to accept the same treatment. Moreover, many of the older persons come from lands where vaccination is more or less compulsory and are already vaccinated. The ruling of the School Board, *which has never been withdrawn*, states that no children shall be admitted unvaccinated, unless the parents make affidavit that they have conscientious objections. If this is not enforced and an epidemic results the responsibility must be placed where it belongs. The Board of Health has no powers of general vaccination save in emergencies, and it is within the province of the School Board to make such emergencies very few in number. No active opposition has been offered to vaccination and there appears to be no adequate reason why the community should be endangered by laxity in the observance of an excellent order.

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### The Arzneimittelkommission

We have previously commented (July, 1912) on the formation of a German Council on pharmacy and chemistry which is known as the "*Arzneimittelkommission des Congresses fuer Innere Medizin*" or simply "*Die Arzneimittelkommission*." Further activities of the Arzneimittelkommission are now recorded (*Jour. A. M. A., Dec. 14, 1912, p. 2195*). So far, the Commission has confined itself to the revision of advertisements in medical journals and has made no attempt to investigate the proprietary medicines themselves. The appointment of a number of expert chemists, pharmacists and of specialists in other fields

indicates that the Commission proposes before long to take up the more important matter of examining the claims that are sent to the physician in the guise of scientific reports, the "literature" which goes with the medicines themselves and constitutes such a potent means of bringing the preparation to the attention of the public and also to verify the chemical identity of the remedies themselves.

Of particular interest and importance is the appointment of the Secretary of the Council on Pharmacy and Chemistry of the American Medical Association. It is of interest in that it shows appreciation of the pioneer work done by our Council. The nomination is important because it makes available the vast fund of information and the illuminating experience which the council has gained during the seven years of its existence.

It would be most desirable if eventually there could be complete cooperation between the two bodies so that a remedy approved by the Council of one country would be considered acceptable in the other. While the ideas of propriety and ethics which prevail in Germany and the radically different function exercised by the German government over business and professional affairs does not make such complete cooperation possible at once it is to be hoped that a correction of the conditions now existing in Germany may eventually make this possible.

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### May We Always Be Worthy of Such Praise

In an editorial entitled, "Demand Clean Advertising," in its issue of January 4, the *Journal of the American Medical Association* says, among other things, the following: "That an advertising policy which rejects nostrum advertisement is not impossible of attainment in privately owned medical journals has been proved by at least three high-grade publications, the *Cleveland Medical Journal*, Cleveland, O., the *Southern Medical Journal*, Mobile, Ala., and *Surgery, Gynecology and Obstetrics*, Chicago. The stand taken by these three journals is the more to be commended when it is remembered that they are not published by large medical-book publishing concerns that find a medical journal a comparatively inexpensive method of advertising their own business. The thinking members of the profession should give these journals their undivided support; at the same time they should register a protest against those other medical journals whose advertising policy is subversive to the best interests of



scientific medicine, the medical profession itself and to the welfare of the public. Action is necessary in either case; passive sympathy on the one hand and unvoiced indignation on the other will do not good."

Of the journals mentioned, we believe that THE CLEVELAND MEDICAL JOURNAL was the first to adopt the policy of limiting advertising of proprieties to such as had received the approval of the Council on Pharmacy and Chemistry of the American Medical Association. There has been no reason to regret the adoption of such a policy, in spite of the actual loss in dollars and cents that has been occasioned.

It is, in a way, incorrect to speak of THE CLEVELAND MEDICAL JOURNAL as a "privately owned medical journal," since it is such in name only. In actual fact, it is the property of so much of the local profession as chooses to interest itself in THE JOURNAL'S welfare. A share of its financial support comes from the Academy of Medicine of Cleveland, another share from those who use its advertising pages, and a final and not insignificant share from a small group of broad-minded local physicians who meet a deficit in order that THE JOURNAL may maintain ideals to which, in the end, the medical profession as a whole must come if it is to live cleanly. This burden is borne by the guarantors without any hope of recompense. They can hope only for relief, and this they are entitled to and will obtain when those advertisers who prefer good company to bad realize that the major portion of the medical profession of Cleveland understands and upholds the standards of its journal. The bulk of THE JOURNAL'S income should come from its advertisers, from those local merchants who look upon the membership of the Academy of Medicine as a higher grade of patronage which ought not be neglected and from those medical advertisers who are willing to give to the doctor value received.

An occasional word of praise from so excellent a medical journal as the *Journal of the American Medical Association* is truly appreciated. In return, we believe it safe to give the assurance, at the beginning of a new year, that THE CLEVELAND MEDICAL JOURNAL will continue to follow along as closely as possible in the path which the *Journal of the American Medical Association* is laying out toward better conditions in the medical profession. When THE CLEVELAND MEDICAL JOURNAL no longer finds it possible to live cleanly, we trust that it will have the decency at least to die cleanly.

### The Coroner's Office

The recent report of the Municipal Association dealing with this question was prepared as the second in a series of investigations made in the interest of efficiency in administration. The office is one which has long been a subject of discussion, and which has been in many quarters severely condemned. In some of the states it has ceased to exist and in many others the duties of the coroner are much modified from the original. A committee of physicians and lawyers was selected and has handed in a very comprehensive report. The whole question has been gone into with much detail, and the committee has made clear that the duties required of the incumbent are on the one hand incompatible, and on the other hand rarely performed in accordance with the existing laws. The summary of their investigations shows that the office as at present executed is an anachronism, that it acts in many cases outside its authority, that in the main the pathological findings are valueless and that political influences have undue weight in the administration of the department. The election by popular vote, the independence from the prosecutor's department, and the apparent requirement that the coroner should be at once a medical and a legal expert, are the main causes noted. As a result of these investigations the Committee recommends that the office should be abolished, that such duties as are now unsuitable to the office should be taken away, that the questions of vital statistics and pathology and toxicology should be given over to qualified persons, and that there should be an intimate cooperation with the prosecutor's office.

The Committee also shows that the money at present expended on the office would be sufficient to pay for work done properly and systematically, under the above recommendations, while in the office as at present administered the greater part of it is spent without any sort of adequate return to the community.

The report is of great interest and while it is obvious that the removal of a political office is a task for Hercules, the present period of change to home-rule for Cleveland is the most hopeful possible for some alteration to intelligent and economical changes in the administration of the important functions now expensively and unintelligently performed.

## Department of Therapeutics

Conducted by J. B. McGEE, M. D.

**High Blood-Pressure:** Edward E. Cornwall, in the *Medical Record* for November 16, presents some practical points in the interpretation and management of high blood-pressure. Elderly people who appear perfectly well sometimes show a pressure no higher than that of middle-aged adults, though failure to show increased pressure with advancing age is often an indication of myocardial degeneration. Toxemias cause high blood-pressure directly, and perhaps indirectly also, by the demands which they make for increased elimination of the toxins; the most extensively operative in these directions is probably chronic putrefactive toxemia of intestinal origin. There are other causes of high blood-pressure beside putrefactive toxemias, notably overwork and dissipation, late hours, and excessive indulgence in coffee, tobacco and alcohol; these causes are under our control and should be removed as far as possible as an essential part of the treatment. After stating the value of general therapeutic methods of treatment, he believes that drugs are of very little value in the treatment of this condition in most cases, but sometimes he finds it necessary to use them. Of the drugs employed, the most important is nitroglycerin, and with the exception of amyl nitrite, whose use is practically limited to attacks of angina pectoris, is the only one on his list; certainly sodium nitrite and erythrol tetranitrite are dangerous in his opinion. The indications for nitroglycerin are found almost exclusively in conditions of arteriosclerosis with disturbance of local nutrition and without much involvement of the kidneys or much toxemia. It is particularly valuable in coronary sclerosis, arteriosclerotic headaches and in some cases with arteriosclerotic pains in the abdomen and legs. When there is much nephritis or toxemia it is generally contraindicated. Aconite and veratrin have a limited range of usefulness as vasodilators in high pressure cases, but should be used with caution, if there is much disease of the myocardium. In eclampsia, chronic nephritis and cerebral hemorrhage, they can sometimes be used to avert or lessen damage to the cardiovascular apparatus. Strychnin, though classed as a heart stimulant and rightly so, does not seem to increase the blood-pressure in arteriosclerosis, but on the contrary lowers it in certain cases, probably by improving the general tone and responsiveness and by co-ordination of the vasomotor system. Small doses of potassium or sodium iodid long continued may be used in arteriosclerosis with hope, though not with expectation of producing improvement, but they should not be given in cases with much nephritis or toxemia. It is not too much to say that cardiovascular disease has come to occupy relatively as important a place in the pathology of the latter half of life as do bacterial diseases in the first half; and the ideal of preventive medicine is as worthy of practical regard in relation to this condition as it is in relation to the diseases of bacterial origin. While showing our patients how to avoid dysentery, small pox and typhoid fever, we should not neglect to teach them how to act and eat, so as to preserve as long as possible the efficiency of their arteries, kidneys and heart.

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**Aconite:** A. D. Rudolph and C. E. C. Cole, in the December number of the *American Journal of the Medical Sciences*, consider the effects of medicinal doses of aconite upon the pulse-rate. Ringer and Murrell introduced the employment of small but frequently repeated doses, and under the influence of the former's book, this method of using the drug became widespread, although of late years one does not hear so much of it. But in the dose recommended in the pharmacopeias, and still less in those suggested by Ringer and Murrell, the pulse does not seem, according to the observations of the authors of the paper, to be at all affected. Their experiments were with the ordinary B. P. tincture, in the Toronto General Hospital, and from that used in the hospital as well as

from that which had been physiologically tested, they obtained negative results. A solution of crystallin aconitin corresponding in strength to that of the B. P. tincture was used on two classes of patients: (1), those with normal pulses and (2), those with fast pulses. Some of the latter had fever and some had normal temperature. In none of the cases was any decided effect upon the pulse-rate observed. Occasionally the pulse was found slow after the taking of the drug, but when the pulse was watched for hours before and after the administration of it, it was seen that such fluctuations occurred without any aconite. Even when the drug is active, small doses seem to have no effect upon the pulse-rate. How then to explain the reports to the opposite so generally found in textbooks on therapeutics and medicine? They believe it to be another example of the *post ergo propter* fallacy so often seen in medicine. As to the marked and dangerous effects occasionally noted as following small medicinal doses of aconite, they ascribe such results as due either to some mistake in dispensing or giving the drug, so that the patient received more than was intended, or else an idiosyncrasy must have existed, so that toxic effects followed the dose ordinarily producing no effect. They believe that the pharmacopeias of today contain many substances which might well be left out and that aconite, certainly in the doses recommended, is one of these.

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**Gastric Neuroses:** In the *Monthly Cyclopedia* for November, Reynold Webb Wilcox presents a note on the treatment of gastric neuroses. From the standpoint of the therapist, even the substitution of the term "gastric neurosis" for nervous dyspepsia has not been altogether fortunate, for it has favored the conception of a gastric neurosis as a morbid entity. By patients the symptoms are sometimes described as "a gas house alternating with a vinegar factory," and a careful interrogation as to signs and symptoms may verify the homely metaphor. The tenable conclusion is that the chemistry of gastric secretion and the physics of stomach motility are not elucidated in textbooks built on an isolated laboratory investigation. However, when repeated investigations are conducted, the basic condition is apparent, and the details considered in their proper perspective only emphasize it. In general, to the treatment given under the several divisions of the subject, as presented in standard textbooks on medicine or in the special works on gastric disorders, but little exception can be taken. When sufficient observation has been directed to the patient, so that the diagnosis is reasonably correct, the indications are generally well met by what is found in the books. Criticism is, however, needed to limit the apparently extensive and improper use of sodium bicarbonate in the treatment of hyperchlorhydria. Reflection and a more careful study of the chemistry of gastric secretion should lead to the substitution of magnesium oxide if one looks for permanent benefit. The diet should be selected, not so much in accordance with the chemical reactions of the stomach contents, as with the condition of the patient plus that of the gastric processes. As there is no panacea for the neurotic conditions which dominates the individual, and of which the gastric neurosis is only one expression, so there is no specific for any one of the twelve varieties of gastric neurosis. Each individual must be studied as an entire organism. With many neurotic women, in addition to regulation of habits, etc., much benefit often follows the use of ten drops of tincture of nux vomica, six grains of resorcinol and one dram of peppermint water, diluted in two ounces of water after meals. This will often obviate the necessity for other medication.

**Goiter:** In the *Medical Summary* for August, Wm. M. Gregory states that when goiter treatment is mentioned most doctors think at once of iodine or the thyroid gland. He formerly did so, but has recently found a better remedy, although an old one, in a more efficient combination. Several years ago he prescribed for a woman who had a large fibrous goiter of long standing, and who was suffering from an irri-

tating tracheal cough, probably caused by the irritation of the goiter, a prescription of powders each containing a very minute dose of protiodid or yellow iodid of mercury. He did not see her for two months and then found that the goiter was about three-fourths gone. This was eight or ten years ago, and since then he has used the protiodid in a large number of cases, and believes it in all young, incipient or soft goiters to be a sure remedy. It will also do much for goiters large in size and those of long standing and should here be given a thorough trial. He thinks that any physician who has once tried the protiodid of mercury will never try again to reduce a patient's neck by painting it with iodine or by giving thyroid gland. As to the dose, he uses powders containing  $1/30$  to  $1/10$  grain of the drug. He believes that instead of giving the usual tablet containing the stated dose, that it should be diluted with a large powder of some inert material, and so gives the  $1/10$  grain in ten grains of powder, the 1 to 100 trituration of the yellow protiodid. He usually gives the patient with goiter a powder every two hours for two or three days, then four times a day. He believes the drug to be as much a specific for goiter as quinin is for malaria, or mercury or potassium iodid for specific disease.

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**Relief of Pain:** A. L. Benedict, in the October number of the *Medical Council*, considers the relief of pain without morphin. For the majority of acute, intensely painful conditions not liable to recurrence nor long continuance, the use of morphin or some opium preparation may be regarded as justifiable, both as an act of mercy and as a rational therapeutic method to obviate shock, spasm, heart failure, impairment of nerve centers, etc. With every allowance for the necessity of morphin and opiates as therapeutic agents, it is nevertheless, a wise policy to use them with reluctance. In some cases, moral suasion, suggestion, the application of mild external remedies, or the administration of mild sedatives, often leave a residue of only slight pain. All pain is essentially local, but a practical distinction exists between pain which can and which cannot be controlled by local means. The former category is increasing as our means of exact diagnosis and efficient local treatment increase. A great many superficial "neuralgias" and some apparently internal troubles are "rheumatic" in the sense that salicylates will afford relief. Genito-urinary distress of various kinds, including that from the presence of a calculus, irritable bladder, chordee and many other quite dissimilar conditions, often depend directly or remotely on excessive urinary acidity. The only way to establish a rational treatment is upon an actual diagnosis, titrating with phenolphthalein, and using alkalis (not neutral salts of alkaline bases) in adequate doses, if the acidity is over 0.5 per cent of a decinormal solution, or even for lower degrees of acidity if it is desirable to bring about neutrality. There is no use fooling with few-grain tablets of lithia; the best alkali is sodium bicarbonate by the teaspoonful. Similar scientific common sense must apply to the stomach. With excess of acid the plain indication is to dilute the acid with water or to use an alkali—here better magnesium oxide or hydroxide than an effervescing carbonate. Spasm, actual or relative, with or without occlusion of the lumen of a tube, is often painful, and greater relief is obtained from a drug that will relax smooth muscle than from a strict anodyne like morphin. Many migraines and visceral pains are due to angiospasm and are better treated by vasodilators than by morphin or coal-tar products. There is a prevalent belief that gastric cancer is ultimately a very painful condition, but regulation of diet, lavage, soothing and antiseptic applications are the basis of treatment. Many times morphin is given when what is really needed is a hypnotic. The author concludes by making a plea for a few mild, old-fashioned or never-in-fashion remedies.

**Intestinal Agents:** George F. Butler, in the *Medical World* for December, presents the pharmacology and therapeutics of some intestinal agents. Under normal circumstances the toxic elements produced in the organism are eliminated by various channels. When any of these emunctories is interfered with in the discharge of its duties phenomena of autointoxication occur. The therapeutic problem here presented is, first, to secure the proper balance of elimination and, next, to secure proper oxidation. The elimination problem is the first, because the materials to be eliminated are already formed and must be expelled in their present character. In many of the conditions to which these states are referable, the strain on the kidneys is secondary to the imperfect action of the liver and bowels and the renal strain is best relieved, as in anasarca, through agents which act on both the liver and intestine, producing a moderate, almost natural, hydragogue catharsis. A favorite combination of his is the union of apocynum cannabinum and asclepias. He believes that while both these remedies have undoubtedly a beneficial action in true nephritis, still the disappearance of albumin and casts occurring after their use is due to the removal of renal strain rather than to any directly beneficial effect on the kidney itself. Another drug acting in a similar way as a tonic hydragogue cathartic and diuretic is chionanthus, and two other drugs which conjoin similar properties with greater action are podophyllin and leptandrin. The conditions underlying intestinal fermentation involve both elimination and oxidation, since fecal resorption is a frequent occurrence. Here he advises a combination of creosote with essential oils in minute quantities, and bilein and pancreatin.

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**Erythemia:** In the December number of the *Archives of Internal Medicine*, Walter S. Lucas treats of erythemia or polycythemia with chronic cyanosis and splenomegaly. It was long considered a rare condition, but during the past few years the increasing number of patients reported from various sources indicates that the malady is not by any means as uncommon as was first supposed. The condition is also known as Vaquez's disease, Osler's disease, and has several other synonyms. In only two out of the reported cases was a marked improvement reported, and with these possible exceptions treatment has been uniformly without permanent benefit. In three cases in which the spleen was removed, the patients died in from a few days to six weeks later. Venesection is reported as having given temporary relief in seven cases and was without result in three cases, while in Fuch's patient there was temporary improvement under treatment by venesection and oxygen. Lucas' experience has been that venesection has been at all times a helpful method, but unfortunately gave but temporary relief. Oxygen, arsenic and the Roentgen ray gave apparent relief in some cases, while others were unaffected. Faradization too was practically inert. As to diet and hygiene, in Milckner's patient, in whose urine there was eight times the normal amount of iron, a diet containing a minimum of ferruginous material benefitted the patient's general condition. Sodium nitrite seems to have given considerable temporary relief from the beginning in some cases, and sodium was used by Koster for pain in the splenic region and headaches with some apparent benefit. Nicola reports that under symptomatic treatment, tonics and eliminatives, his patient improved and the cyanosis almost disappeared, but the polycythemia was not affected by the treatment, nor by potassium iodid or X-ray. Carlsbad treatment improved the general condition in Geisbock's patient. A long list of other agents and methods have been tried without especial benefit by different authors.

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**Heroin Habit:** In the *Journal of the American Medical Association* for December 14, John Phillips writes concerning the prevalence of the heroin habit, stating that heroin or diacetyl-morphin is so frequently employed in the treatment of various disease conditions

that the question of formation of habit from its use is a serious one. It is often prescribed for cough, the result of irritating conditions in the air passages, and physicians not infrequently tell their patients what drug they are prescribing, so that indirectly the patient comes to look upon heroin as a harmless sedative for his cough. Even physicians are not sufficiently alive to the danger of habit from its use. This in all probability is largely due to the fact that pharmacologic textbooks lay very little stress on this point and in many cases neglect to mention it altogether. In one instance, a patient who came under his observation told a physician, who was called to treat him for an attack of laryngitis, not to give him anything that contained opium, as he had formerly been a slave to this drug. The physician replied "I will give you some heroin; there is no danger from that." This the patient took, with the result that he later had as much difficulty in breaking away from the heroin as from the opium habit. In some cases, too, heroin is given hypodermically by surgeons to allay the discomforts before and after operations. He quotes a case in which habit resulted from this procedure. The purpose of his paper is to call attention to the fact that heroin is being used extensively by means of "snuffing" in the tenderloin districts of large cities. He reports a case of its use by this method, the patient stating that he knew of at least twenty of his associates using the drug in this manner. The method of use is to take three or four  $1/12$  grain tablets, fold in a piece of stiff paper, crush the tablets and snuff the powder either from the paper or from the "snuffbox" on the dorsal surface of the thumb. In another case reported to him by Doctor Chas. H. Tanner, the patient used heroin in suppository form. The symptoms in all these cases resemble closely those of chronic opium poisoning, except that with heroin the patient has a chronic rhinitis. From these facts he states that heroin should be prescribed with the same care as morphin because of the great danger of habituation.

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### New and Nonofficial Remedies

Since publication of *New and Nonofficial Remedies*, 1912, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

Novatophan is ethyl-6-methyl-2-phenyl-quinolin-4-carboxylate, the ethyl ester of paratophan. It is a crystallin, tasteless powder, insoluble in water. Its action is the same as that of atophan from which it differs only in being tasteless. It is also furnished in the form of Novatophan Tablets, 0.5 gm ( $7\frac{1}{2}$  grains). Schering & Glatz, New York (*Jour. A. M. A.*, Nov. 30, 1912, p. 1971.)

Hexal is hexamethylenamin salicylsulphonic acid. It is a white crystallin powder, soluble in water. It is a weak combination of hexamethylenamin and salicylsulphonic acid. It is claimed to have the action of hexamethylenamin combined with an anesthetic and astringent action on the inflamed mucous membranes of the biliary passages and urinary bladder, without having a deleterious effect on the bladder walls. Claimed to be useful in chronic inflammation of the bladder, posterior urethritis, etc. It is also furnished in the form of Hexal Tablets, 0.5 gm ( $7\frac{1}{2}$  grains). Riedel & Co., New York (*Jour. A. M. A.*, Nov. 30, 1912, p. 1971).

Glycotauro, Bile Salts, H. W. & Co., is concentrated ox-bile, freed from bile pigments, each gram representing approximately 10 ccm of fresh ox-bile. It is a soft, semisolid mass of bile-like odor and slightly bitter taste. Its actions and uses are those of bile salts. It is marketed in the form of Glycotauro Capsules, 5 gr and Glycotauro Pills, 1 gr. Hynson, Westcott & Co., Baltimore, Md. (*Jour. A. M. A.*, Dec. 7, 1912, p. 2066).

Mercurial Ointment, Improved, Mulford, is an ointment containing 50 per cent of metallic mercury in an ointment base consisting of anhydrous wool-fat, petrolatum and suet, aromatized. Its actions and uses are the same as mercurial ointment, U. S. P., but it is devoid of the unpleas-

ant odor of the official preparation and is said to be more readily absorbed. It is marketed in the form of Capsules Mercurial Ointment, Improved, Mulford, 30 grains and Capsules Mercurial Ointment, Improved, Mulford, 60 grains. H. K. Mulford & Co., Philadelphia, Pa. (*Jour. A. M. A., Dec. 7, 1912, p. 2066*).

Cycloform, isobutyl para-aminobenzoate, is 2-methyl-propyl-4-aminobenzoate. It is closely related to anesthesin (ethyl aminobenzoate) and propaesin (propyl aminobenzoate). It is an odorless, crystallin powder, soluble in olive oil and only slightly soluble in water. Said to act on wound surfaces or mucous membranes as a superficial and prolonged anesthetic and as a mild antiseptic. Used as a dusting powder, 5 to 20 per cent ointments, in suppositories and internally in doses of 0.1 gm to 0.2 gm (1½ to 3 grains). Farbenfabriken of Elberfeld Co., New York. (*Jour. A. M. A., Dec. 14, 1912, p. 2150*).

Since Dec. 1 the following articles have been accepted for inclusion with New and Nonofficial Remedies: Vacules Cornutol (H. K. Mulford Co.). Calcium Glycerophosphate (Monsanto Chemical Works). Slee's Diphtheria Antitoxin (Abbott Alkaloidal Co.).

## Academy of Medicine of Cleveland

### ACADEMY MEETING

The ninety-sixth regular meeting of the Academy, the annual meeting, was held at the Cleveland Medical Library, Friday, December 20, 1912, the President, J. V. Gallagher, in the chair.

The program was as follows:

The Relations of the Organized Medical Profession to Social Service, by J. C. M. Floyd, President of the Ohio State Medical Association.

The speaker reported the condition of the State Association to be good and discussed the suggestion made at the recent meeting of the Clinical Congress of Surgeons of North America that state surgical societies be formed. He advised against this and suggested instead the adoption of a proposed plan that there be held under the auspices of the State Association, at some time during the winter and at four different cities of the state, clinics to be both surgical and medical.

The speaker defined social service as the saving of citizens by improving their surroundings. He reviewed the problems relating to infant mortality, housing of the poor and general hygiene and sanitation, in the solution of which the help of the organized medical profession is necessary. Great stress was laid upon the function of the family physician as an educator of the laity, especially in matters relating to sex hygiene.

Upon motion, a vote of thanks was extended to the speaker.

The annual reports of officers and standing committees were submitted and received.

The Secretary, J. E. Tuckerman, reported as follows:

The Academy has held nine meetings during the past year. Twenty papers were presented; thirteen by local men, seven by men from other cities. The average attendance was 72.

The membership is as follows.

	1912	1911
Active Members .....	464	478
Nonresident .....	88	88
Associate .....	47	53
Honorary .....	7	10
Nonactive .....	4	
Total.....	610	629

Decrease in membership, 19.

Elected to membership during the year: Active, 12; nonresident 3; associate, 2. Transferred to membership: Active, 2. Losses in member-



ship: Resigned, 3 (2 removed from city with transfer); deaths, 3; suspended, 31 (suspension for nonpayment of dues: Active, 16; non-resident, 7; associate, 8).

Seventy-five members of the Academy attended the annual outing and dinner held at Willoughbeach, September 5.

The Council held eleven meetings during the year.

The following transactions of the Council deserve particular mention: J. J. R. Macleod reported for the Committee on Dispensary Abuse and Contract Practice. This report with its recommendations for the control of dispensary, clinical and hospital abuse was published and a copy mailed to each member of the Academy.

The Council authorized: 1, The changes necessary in files and records incident to combining the offices of Secretary and Treasurer. 2, The remodelling of the addressing machine to meet present requirements. 3, The placing of programs in the hands of the Seniors and Juniors of the Western Reserve Medical College. 4, The publication of a roster of the members of the Academy of Medicine. 5, The collection of information regarding the occurrence of physicians' names in connection with medical articles and news items relating to the care or treatment of patients.

The Secretary would suggest: That members can assist in increasing the membership of the Academy by suggesting the names of men in their neighborhood whom they believe are eligible for membership. That physicians connected with other associations can aid the attendance of the Academy by discouraging the setting of special meetings or functions by these societies upon the particular evening on which the Academy meets. That the publication of the roster should be made yearly on the first of April. That members can assist the Council by reporting promptly to the Secretary in detail any complaints they may have in regard to the management of hospital clinics, the activities of visiting nurses and others engaged in medical charity.

The Treasurer, J. E. Tuckerman, submitted the following report:

The Treasurer's books were closed and audited on December 18, 1912. The receipts and expenditures were as follows:

#### Receipts

Cash received from former treasurer, J. C. Darby.....	\$ 708 52	
Admission fees and dues for current year (active, non-resident, associate) .....	2,487.00	
Total Receipts .....		\$3,195.52

#### Expenditures

Secretary-Treasurer .....	\$ 300.00	
Ohio State Journal.....	670.00	
Cleveland Medical Library Association.....	450.00	
Cleveland Medical Journal Co.....	450.00	
O. S. Hubbell Printing Co.....	418.00	
Horace Carr .....	110.55	
Elliott Addressing Machine Co.....	36 62	
Lebeck-Rueter Co. ....	14.50	
J. C. Harding .....	20.00	
Miss Morris .....	25.00	
David Marine .....	18.50	
Receipt-Label Co. ....	4.25	
R. G. Hoskins.....	8.25	
Candell Office Furniture Co.....	7.50	
F. G. Novy.....	4.75	
Wilhelmy (Florist) .....	25.00	
Burrows Bros. ....	1.25	
Miscellaneous .....	41.45	
Total Expenditures .....		2,610.70
Balance on hand.....		\$ 584.82

The Treasurer's report was certified as correct by the Auditing Committee.

The reports of the secretaries of the sections presented the following data:

Clinical—

Section	Meetings	Cases	Specimens	Papers	Attend.	Average Attend.
Pathological .....	8	8	23	30	637	80
Experimental						
Medicine .....	6	---	---	10	285	47
Ophthalmological and Oto-Laryngological	7	15	10	28	113	16
Medico—						
Pharmaceutical ....	2	---	---	3	---	---
Veterinary .....	9	---	---	8	---	10

The Civic Committee, through its chairman, A. S. Storey, reported that a number of important questions were under investigation, but that little of the business of the committee had been carried to completion. In regard to the relations of physicians to the newspapers, it was reported that negotiations were under way with the *Leader* and the *News* for the naming of a medical editor. The committee is cooperating with the Advertising Club in its endeavor to control false medical and other undesirable advertising.

E. P. Monaghan, chairman of the Membership Committee, reported the deaths of two active members and one non-resident member during the course of the year.

C. E. Ford, chairman of the Legislative Committee, submitted the following report:

Your legislative committee for the year of 1912 has consisted of Benjamin Gage, R. E. Skeel, the Secretary of the Academy, and myself, as Chairman.

I have represented the Academy in a dual capacity; as Chairman of the Legislative Committee, and member of the State Committee on Public Policy and Legislation, and as such desire to submit the following report:

As Chairman of the Legislative Committee, two questions have been submitted:

First: The statutes provide that communications between physicians and patients shall be privileged. The Supreme Court has determined that the term "communications" means nothing more than information directly communicated by the patient to the physician by word of mouth or writing and that any information learned by the physician in his professional work with his patient by observation, examination, etc., and his prescription for the patient are not privileged. This is manifestly an absurdity and the law should be so amended as to make privileged any information acquired by the physician while the relationship of physician and patient exists.

Second: It has also been suggested that in any case, civil or criminal, where the sanity of any party is brought in question as an issue, his sanity or insanity should be determined by a commission of perhaps three physicians, appointed by the Common Pleas Court in each County, who would testify impartially. This method would, of course, oppose the present system of having physicians employed by each city whose testimony may unconsciously be influenced by their appointment. These questions have been submitted to the State legislative committee for their action.

The State committee will give its support the following winter to consideration by the State of the tuberculosis question, and will ask the legislature to appropriate twenty-five thousand dollars per annum for this work.

I have also been directed, as a member of that committee, to negotiate with an experienced newspaper man, who will be located in Columbus during the session of the legislature, to keep under constant observation proposed legislation affecting medical or social questions. The State Association has appropriated funds for this purpose.

It appears that the Academy of Medicine should interest itself in having representation on the Charter Commission soon to be organized. This question is submitted for the consideration of the new Council.

Owing to the fact there was no session of the legislature this year, there is no report on legislation accomplished.

Owing to effort of the organized medical profession three or four years ago, in opposition to quack advertising in the daily press, any proposal of whatever character by the medical profession has been opposed by the newspaper interests. For this reason the State legislative committee has been and will be, during the coming session, largely on the defensive.

The Public Health Committee, through its chairman, J. G. Spenser, reported as follows:

The most vital points in the sanitation of our city, to wit, water supply and sewage disposal, have been so thoroughly discussed in the past year that we feel it unwise to continue adverse criticism, since the municipal officials are now making efforts to handle both, and in this work all good citizens should lend them every assistance possible.

Of our studies most time has been spent in and about factories of various kinds. Most pronounced among the lax hygienic conditions is naturally faulty ventilation.

**Electric Lamp Works.** Inadequate ventilation either for the purpose of economizing in heat or the protection from direct air drafts on the hundreds of small flames. The use of wood alcohol, which is more or less present in the atmosphere, being but partially consumed and probably producing traces of formaldehyde, together with carbon monoxide and dioxide. Further bad effects on the eye, because of continuous ocular inspection and comparison of the character of the bright incandescent bulbs without any protection from the same.

**Lead Poisoning:** In the manufacture of the storage battery, red oxide of lead is pressed into the cells of the lead plate by the workman's hands. A general disregard as to the dangers of absorption, particularly if it be gotten under the finger nails or in the cracks in the thick skin, or indifference as to the cleanliness of the hands while eating lunch, results in lead poisoning frequently within three months.

**Painting:** In automobile and carriage paint-shops, the most dangerous part of the work is the scraping and rubbing off of the old paint. In some shops considerable dust can be seen in the air and lead poisoning occurs even sooner than in the case of the battery lead poisoning.

**Chemical Laboratories:** The chemical laboratories of the secondary schools and colleges are not provided with sufficient means for the removal of poisonous gases and for proper ventilation. Twenty to one hundred students in elementary laboratories, each with a gas jet burning and making a halogen, nitric oxide, hydrochloric acid gas or ammonia, etc., and the general waste of hydrogen sulphide must lead to ill health. This annoyance could largely be eliminated if there was a greater change of air, and a proper supervision with sufficient instructors. Hydrogen causes headache, carbon dioxide drowsiness, carbon monoxide dizziness and anemia, hydrochloric acid, sulphur dioxide, the halogens and ammonia produce conjunctivitis and bronchitis.

**Garages:** The vapors from gasolene and the gases produced by the more or less imperfect combustion have caused everything from general dullness and dyspnea up to complete anesthesia. Proper ventilation would remove this sort of danger and discomfort.

**Street Cars:** Our street cars are never properly ventilated unless they be of the open type. The "Menschengeruch" within a crowded street car on a rainy or misty night with some of its occupants ill, has yet to

be appropriately named. The malodorous character of the air is increased on market days when the odor from fowl and foul cheese are added.

**Streets:** The streets of Cleveland, because of the large territory over which they extend, have always been neglected as far as cleanliness is concerned. In many places public thoroughfares seem to be regarded as receptacles for refuse. In fact, the elements have at times been the only means for cleaning them. In summer the catch basins are cleaned when their stoppage has been proven by a rainstorm and in winter they freeze. This might be remedied in several ways, to wit, placing the trap below the frost line, keeping the basin clean and gutter open—the merchant, the churches, the citizen with abutting property should have enough public spirit to keep them open. Instructions that in cleaning snow and ice from the sidewalks in the residential districts, that they be thrown onto the lawns and not into the streets would in a great measure do away with the annoying and unsightly flooding of the streets in the case of a thaw.

**Snow storms:** The only ones who make an effort to fight a snow storm intelligently are the street or steam railroads, i. e., beginning when the snow begins to fall and not leaving it for hours or days until it becomes ice as much as six inches thick.

**Miscellaneous.** The lack of individual drinking cups in shops where cases of lues are present has been seen, likewise the absence of the individual towel. The free entrance and exit of domestic animals (cats and dogs) to houses containing communicable diseases exists. The manufacture of carbonated beverages in dirty quarters by dirty workmen with dirty apparatus. Cheap restaurants with cheap, inefficient and unclean help.

A. F. Furrer, Assistant Secretary of the Milk Commission, presented the following report:

The essential factors in the production of Certified Milk are: (1), Healthy cows; (2), cleanliness; (3), adequate refrigeration; (4), efficient sealing of bottles and prompt transportation from the farm to the city and thence to the consumer; (5), the prevention of contamination of milk by employees having communicable diseases.

At the annual test of the certified herd last May, made by our Veterinarian, 146 cows were given the tuberculin test. Of this number only one reacted positively. This animal was immediately removed from the herd and butchered and the stables cleaned and disinfected under the supervision of our Veterinarian. A record is now kept by the Commission of the markings and number of any animal reacting positively at the annual tests.

The excellent showing made by this certified herd in regard to the tuberculin test last spring was a source of great satisfaction to your Commission, inasmuch as it has been shown by North of the New York Commission that about 3 per cent of the certified herds react positively at the annual tuberculin tests.

Inspection visits at the farm by our Veterinarian were made at monthly intervals as usual and occasionally more frequently when it was deemed necessary.

The udders are examined daily by the chief herdsman or superintendent.

The cleanliness of the animals, barns and milk-house as well as the technique of milking and the general physical condition of the employees is noted by the Veterinarian or Assistant Secretary at their regular inspection visits. Thirty such inspections were made during the past year.

The Superintendent is required to report the absence of any communicable disease by mail weekly. The occurrence of sore throat or skin eruptions among any of the employees or their families is reportable direct by telephone to the Secretary or Assistant Secretary.

An index of the cleanliness of Certified Milk may be had by observing the report of the bacterial counts made by our Bacteriologist; 27 counts

were made during the year at semi-monthly or weekly intervals. Of this number eight counts will be found under 4000, nineteen below or better than the 10,000 standard, five slightly above and three counts only were high. The latter were carefully investigated and were probably due to the inefficient cleansing of a new and somewhat complicated bottling machine.

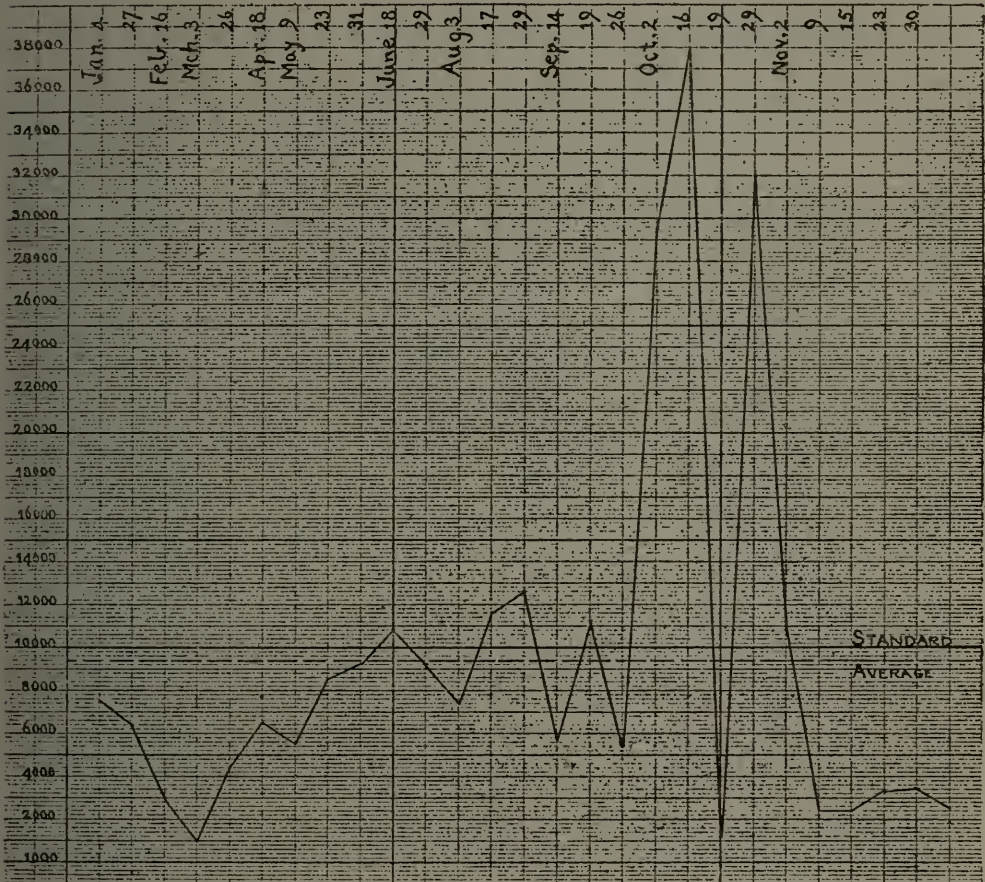


Chart of Bacterial Counts

**Refrigeration:** An addition to the ice house was made last year, nearly doubling the storage capacity. The milk is cooled to 35 degrees F within fifteen minutes of milking by the passing of water and brine through the cooler. One frequently sees the bottom four or five tubes of the cooler coated with iced milk. The Bacteriologist reports the temperature when making his counts. These records reveal the milk to vary between 38 degrees and 52 degrees, with an average for the 27 samples of 43 degrees plus. The milk after bottling is iced except in winter weather. Thermos boxes have been provided by the distributor where the milk reached the consumers several hours before it could be used.

**Sealing:** Last August a change in the sealing was attempted. The metallic cap of The Crown Cork & Seal Co. taking the place of the former cap disk and paper cover. The chief advantage of this method of sealing was the doing away with the necessity of putting on the cap disk by the man in the bottling room. A practical test, however, extending over a period of several weeks soon demonstrated that while this method of sealing might be more hygienically perfect than the other, still it was not without serious disadvantages. It was found that the metallic caps did not grip the bottle securely. A special bottle had to be made with a

smaller neck, making it more difficult to clean with the revolving brushes. The machine used in capping was ponderous and liable to chip off small pieces and several complaints were soon received of glass being found in the milk. It has been decided, therefore, that it would be safer to go back to the former method of sealing.

Three chemical examinations were made during the year by our Chemist, H. D. Haskins. These reports reveal a milk well within the requirements of the standards of the Commission. A search for preservatives is always included in these examinations.

The Secretary and Assistant Secretary, delegated to attend the annual meeting of the American Association of Medical Milk Commissions held in Louisville last June, report a profitable and enthusiastic meeting. A uniform standard or working method for all Certified Milk Commissions was formally adopted at this meeting.

February 1, The Belle Vernon-Mapes Dairy Company became the distributor of all Walker-Gordon products, including Certified Milk, on the East Side.

The demand for Certified Milk has increased considerably in the past year, about 100 quarts per day being produced over that of last year, representing a growth in the demand of about 20 per cent.

In conclusion, the Commission wish to remind the medical profession of the cordial invitation extended to them by our producer and distributor to visit and inspect the farm at Novelty. A special invitation was extended last spring by The Belle Vernon-Mapes Dairy Company, special cars and a collation being placed at our disposal. About one hundred physicians availed themselves of this opportunity of visiting a model dairy.

The election of officers for the ensuing year resulted as follows: President, H. L. Sanford; Vice President, C. L. Cummer; Secretary-Treasurer, J. E. Tuckerman; Trustees, G. E. Follansbee and N. C. Yarian.

#### CLINICAL AND PATHOLOGICAL SECTION

The ninetieth regular meeting of the Section was held at the Cleveland Medical Library, Friday, January 3, 1913, the Chairman, W. H. Merriam, in the chair.

F. C. Herrick reported a case of ruptured tubal pregnancy with hemorrhage, characterized by a slow pulse rather than the rapid pulse which one usually expects in this condition. In another case of intra-abdominal hemorrhage, due to a stab wound, the pulse was also slow. The speaker also reported the removal by gastrotomy of an open safety pin which had been swallowed by an eighteen months' old baby. The pin had lodged in the esophagus at a point opposite the upper end of the sternum and could not be removed by the esophagoscope. It was pushed into the stomach and removed three days later by gastrotomy.

H. L. Sanford, in discussion, said that he had never seen a case of severe hemorrhage associated with slow pulse and asked whether the possibility of the absorption of the fluid elements of the blood and their return to the circulation might be the explanation of the phenomenon. He asked also in regard to the speaker's opinion as to the advisability of operation in ruptured ectopic pregnancy without waiting for the disappearance of shock.

R. K. Updegraff pointed out that Vierordt and Sahli had mentioned large hemorrhage as a cause of slow pulse.

W. W. Cowgill asked whether the action of the gastric juice could be depended upon completely to erode metal objects so that the latter could do no damage.

F. C. Herrick, in closing, said that he had been surprised that slow pulse associated with hemorrhage had not been seen more often by others. The absorption of ascitic fluid from the peritoneal cavity has been reported and perhaps the absorption of the fluid constituents of the blood might

explain the slow pulse. In general, the rule in hemorrhage is not to operate during shock but to wait for the reaction; however, in ruptured tubal pregnancy he felt that operation should be done as early as possible. In regard to the possible complete erosion of metallic objects by the gastric juice, it did not seem to be good treatment to wait for such a process in the case of an object like an open safety pin, since perforation of the stomach might occur before erosion had rendered the object harmless.

The regular program was as follows:

1, Clinical Results of Nasal Treatment in Asthma, by W. J. Abbott.

Reflex stimulation through abnormalities in the nose has been given as a cause of bronchial asthma. In the speaker's series of cases of typical bronchial asthma there was marked turbinal hypertrophy in all. In all but two of these complete relief from or marked improvement in the asthmatic attacks followed the removal of the hypertrophied tissue. In the two unimproved cases there was present, in addition to the hypertrophy, a condition of marked diffuse acute inflammation with much edema. Turbinal hypertrophy is supposed to be due to ethmoiditis and it seemed that milder degrees of ethmoiditis, without marked hypertrophy, might, perhaps, be associated with spasmodic attacks of coughing or sneezing, conditions less severe than a typical asthma. Such cases were encountered, and clearing up of the ethmoiditis led to a disappearance of the respiratory symptoms. The conditions most frequently associated with ethmoiditis and apparently the cause of the latter were sinus empyema, deviation of the nasal septum and adenoids. The prognosis in the cases of bronchial asthma treated by correction of nasal abnormalities has seemed to depend upon the extent of removal of the ethmoiditis and upon the care which the patients have taken of themselves since. (To be published in full.)

J. P. Sawyer, in discussion, agreed that many cases of asthma would be improved by treatment of abnormal conditions in the nose and the possibility of the causation of asthma by nasal abnormalities should be borne in mind in every case. He mentioned the case of an elderly man who for twenty years had suffered with severe asthma. Recognition of an ethmoiditis and treatment of the latter led to marked relief.

2, Myxedema; with Report of a Case, by R. K. Updegraff.

Typical myxedema is supposedly rare, but atypical cases which react to the therapeutic test seem to be fairly frequent. Sudden increase in weight, abnormality in menstruation, sensations of cold, a feeling of weight and dullness, changes in the hair, slowing of the pulse, all these are points which, alone or combined, may be evidence of atypical cases. In the case reported, a woman 31 years old complained of nervousness and rapid increase in weight. At 18 she had had transient swellings of the face and alopecia of the crown of the head. She was married at 22 and a child was born during the first year of the marriage. There was a rapid gain of 50 pounds in weight when the child was weaned at the age of 1 year. Upon physical examination the weight was 160 pounds, the pulse 130. The reflexes were exaggerated and skin sensation was abnormally acute. There was tremor of the fingers and arms. The heart was increased in size to the left. Pubic and axillary hairs were absent. The skin appeared edematous but would not pit. Administration of small doses of thyroid extract was followed by a rapid loss of 12 pounds in weight and improvement in general condition, but the heart remained rapid for some time after the general improvement had begun. Gradually the weight returned to the original normal, the pulse-rate dropped; the hair grew rapidly.

H. L. Sanford, in discussion, asked in regard to the size of the thyroid.

C. H. Lenhart asked whether the pulse-rate dropped proportionately to the decrease in the size of the heart.

R. K. Updegraff, in closing, said that the thyroid was not palpable. During treatment the pulse dropped to 82, where it has remained; the size of the heart went down somewhat more slowly than the pulse-rate.

3, Hypertension; with Report of Cases under Prolonged Observation, by M. J. Lichty.

In spite of the large amount of attention directed during recent years to hypertension, our actual knowledge concerning the condition is not yet very exact or definite. Hypertension is a symptom, and the conditions underlying it and causing it must be determined before the other train of symptoms produced by a persistent high blood-pressure can be overcome in a rational manner. In a series of cases observed over long periods of time vasodilators have been of no avail in reducing the pressure and have, indeed, seemed to make the general condition worse. Iodids, also, have been of little good in these cases. The urine contained bile and indican. At times the high frequency current has given temporary relief. Most helpful have been measures which aimed toward regulation of the mode of life and those which increase the elimination of toxic wastes. Such measures may bring considerable relief from troublesome general symptoms, but they do not always bring about any marked decrease in blood-pressure.

There is the greatest diversity of opinion as to the etiology, prognosis and treatment of cases of hypertension. The speaker concluded that in most cases there is a generalized deficient or abnormal excretion. The findings pointing to such abnormalities of excretion give an index of the degree of toxemia which leads to the hypertension. The prognosis is good if the hypertension exists alone, without definite involvement of any of the organs. With cardiac or renal involvement, the prognosis is bad, although general measures can do much to increase the comfort of such patients. Treatment should be more thorough and should be based upon careful study of each individual case. Diet is as important in the treatment as medication, although it is often too much restricted. Regulation of the entire mode of life, sometimes with complete change in the manner of living, is often necessary.

C. L. Graber, in discussion, said that he had found medical treatment of little help in his hypertension cases. He had used the high frequency current, sometimes with very good results, in other cases with no improvement. In some cases reduction of the pressure does not seem to be what is desired. In general, the patient, rather than the high blood-pressure, should be treated.

G. S. Smith considered high pressure a symptom and not a disease. Often enough the condition which causes the hypertension cannot be determined. Frequently it is impossible to say whether the symptoms are the result of the pressure or of the underlying conditions which cause the increased pressure. In life insurance work one fairly frequently sees cases of increased pressure in men who think they are perfectly well. He agreed that the prognosis is good if there is no definite lesion of any organ.

M. J. Lichty, in closing, said that the treatment of cases of hypertension presents a difficult problem. Each case must be carefully studied in order to detect, if possible, the underlying causative factors.

#### COUNCIL MEETING

A regular meeting of the Council was held Wednesday, December 11, 1912, the President, J. V. Gallagher, in the chair.

V. C. Rowland, John B. Morgan and W. Claude Martin were elected to active membership.

The applications of H. Lupeson for active membership and of Leslie A. Wolf, of Ravenna, for nonresident membership were received and ordered published. Requests for transfer were read from C. A. Black, of Columbus, and Clive W. Thompson, of Geneva, and their names were ordered placed on the rolls of the Academy. The list of members dropped for nonpayment of dues was read.



The Secretary was directed to communicate to Strong, Cobb & Company the disapproval of the Council of such publications as the "Treatise on Blood Dyscrasia" which the firm has been circulating.

Literature from the Cleveland Cancer Sanatorium, 425-426 Osborn Building, was presented. The Secretary was directed to take the matter up with the Osborn Building Company.

The correspondence with M. Loewenthal was presented to the Council. His resignation was accepted.

The Workmen's Compensation Act was informally discussed and the suggestion was made that the Academy ought to have a permanent committee on Medical Economics, which shall keep a file of matters relating to this subject and be ready to give information when requested.

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### The Cleveland Medical Library Association

The annual meeting of the Association was held at the library, Monday, December 9, 1912.

Amendments were adopted reducing the number of trustees from thirty to fifteen.

Announcement was made of a gift from Dudley P. Allen of five hundred dollars, which the Association voted to place in the endowment fund.

The following officers were elected: President, C. B. Parker; Vice-President, B. L. Millikin; Treasurer, W. E. Bruner; Secretary, H. L. Sanford; Librarian, C. A. Hamann. Trustees were elected as follows: For three years, D. P. Allen, C. B. Parker, W. E. Bruner, C. A. Hamann and F. C. Herrick; for two years, B. L. Millikin, H. F. Biggar, Sr., J. B. McGee, H. E. Handerson and H. G. Sherman; for one year, J. H. Lowman, C. F. Hoover, W. H. Humiston, J. E. Cook and R. E. Skeel.

The Finance Committee reported \$8,028 in the endowment fund and \$10,000 in the Rosenwasser fund.

The Secretary, H. L. Sanford, submitted the following report:

Since the last annual meeting of the Association, held on December 11, 1911, the Council has held eight regular meetings and one special meeting.

At the first Council meeting of the year the President announced the committees for 1912, the names of the Chairmen of which follow: House Committee, H. J. Lee; Library Committee, C. A. Hamann; Finance Committee, B. L. Millikin; Membership Committee, J. P. Sawyer. The Entertainment Committee and the Committee on Historical Collections are subcommittees of the House Committee and are appointed by its Chairman.

The total membership of the Association is at present 249 as against 250 of 1911. The membership is divided as follows: Honorary, 1; subscribing, 58; active, 183; nonresident, 5; reading privileges, 2; total, 249. Gain: New subscribing from active members, 3; new active members, 15; reading privileges, 1; total, 19. Losses: Active members to subscribing members, 3; resigned and dropped, 15; never qualified, 1; deaths, 1; total, 20. Net loss, 1.

Your Secretary regrets to record the death of one of your honorary members during the year, that of Gustave C. E. Weber. At the special Council meeting held in March, 1912, the President of the Association, with the following gentlemen, Doctors Lee, Lowman, Sherman and Spenser, was appointed a committee to arrange a memorial meeting to Doctor Weber. This meeting was held in the auditorium of the Association on May 2, at which speeches were made by Martin Stamm of Fremont, Ohio, and J. H. Lowman, H. F. Biggar, Sr., and Mr. M. A. Marks.

The report of the Librarian, C. A. Hamann, was as follows.

Bound volumes, 17,077; unbound volumes, 2,081; pamphlets, reprints, etc., 9,850. Purchased during past year, 51 volumes; journals bound, 262 volumes; loaned to members, 990 volumes. Donations to the library were:

Bound volumes, 571, of which 63 were new books given through the *Cleveland Medical Journal*; unbound complete volumes, 24; odd numbers of journals, 420; pamphlets, 224. Calls for nurses filled, 340. Number of visitors registered, 1,151. There are 293 journals on file and received regularly; of these 166 are received through the exchange of the *Cleveland Medical Journal*. New journals added in 1912 are: *Universal Medical Record* (London, Eng.), *Journal d'Urologie*, *Zentrablatt fuer die gesamte innere Medizin*, etc., *Vierteljahrsschrift fuer gerichtliche Medizin*, *American Journal of Urology*, and *Journal of Biological Chemistry*.

The Treasurer, W. E. Bruner, presented the following report:

Receipts:

	1912	1911	Increase	Decrease
Balance on Hand (January).....	\$ 566.05	\$ 963.95		\$397.90
Dues Current Year.....	2285.00	2315.00		30.00
Back Dues .....		30.00		30.00
Dues in Advance.....	35.00	40.00		5.00
Subscribing Membership Dues....	20.00	20.00		
Nurses' Bureau .....	271.75	320.65		48.90
Interest on Invested Funds.....	880.49	788.46	\$92.03	
Academy of Medicine.....	450.00	470.55		20.55
Cleveland Medical Journal.....	12.00	18.00		6.00
Western Reserve University.....	100.00	100.00		
Rent of Hall.....	30.00	30.00		
Council Prizes .....		150.00		150.00
Fines Collected .....		10.55		10.55
Special .....		21.00		21.00
Miscellaneous .....	4.00		4.00	
	<hr/>	<hr/>		<hr/>
	\$4654.29	\$5278.16		\$623.87

Expenditures:

	1912	1911	Increase	Decrease
Artificial Gas .....	\$ 62.32	\$ 48.50	\$ 13.82	
Natural Gas .....	26.10	21.66	4.44	
Electricity .....	100.10	124.20		\$ 24.10
Coal .....	347.48	265.00	82.00	
Water Rent .....	5.00	5.70		.70
Telephones .....	160.80	158.30	2.50	
Journals .....	966.46	852.40	114.06	
Binding Journals .....	236.70	203.65	33.05	
Library Supplies .....	89.43	53.30	36.13	
Printing .....	29.30	39.09		9.79
Supplies and Repairs to House....	69.75	156.37		86.62
Postage .....	30.00	44.00		14.00
Salary .....	1740.00	1720.00	20.00	
Insurance .....		67.50		67.50
Council Prizes .....		150.00		150.00
Book Stacks .....		682.82		682.82
Painting and Cleaning.....	162.00		162.00	
Miscellaneous .....	161.80	119.62	42.18	
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	\$4187.24	\$4712.11		\$524.87

### Book Reviews

A Manual of Auscultation and Percussion, embracing the Physical Diagnosis of Diseases of the Lungs and Heart, and of Thoracic Aneurysm, and of other parts. By Austin Flint, M. D., LL. D., Late Professor of Medicine and of Clinical Medicine in the Bellevue Hospital Medical College, etc., New York. Revised by Haven Emerson, A. M., M. D., Associate in Physiology and in Medicine, College of Physicians and Surgeons, Columbia University, New York. 12mo, 361 pages, illustrated. Cloth, \$2.00 net. Lea & Febiger, Philadelphia and New York, 1912.

This little volume has been presented, as stated by the editor, with as little change as possible from the original as written by its distinguished author. It is a model of clearness and simplicity of style, but undoubtedly contains some things which are hardly consistent with more recent works. For example, on page 46 the statement is made that the left apex of the lungs usually extends higher above the clavicle than the right. The pitch of percussion notes is much emphasized and especially the fact that normal lung resonance is lower pitched than any tympany thoracic or abdominal. This seems rather arbitrary, since some writers, as Gee, take quite an opposite view and describe the pure tympanitic tones as the lowest in pitch and since some percussion notes are hardly sufficiently simple, musical tones to have a pitch that is readily distinguishable from tone quality. Some physical demonstration of pitch or less arbitrariness of statement would seem becoming to writers on physical diagnosis and less confusing to students. The variations within the normal in auscultatory signs in the lungs are well described. For the sake of completeness a few chapters have been added to the original work, but are too sketchy to be of much value.

V. C. R.

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An Introduction to the Study of Infection and Immunity. Including Serum Therapy, Vaccine Therapy, Chemotherapy and Serum Diagnosis. By Charles E. Simon, M. D., Professor of Clinical Pathology and Experimental Medicine, College of Physicians and Surgeons, Baltimore. Octavo, 301 pages; illustrated. Cloth, \$3.25 net. Lea & Febiger, Publishers, Philadelphia and New York, 1912.

The reader who does not keep himself steeped in it is apt to look upon the vocabulary of immunology as jargon that he never hopes to understand. And he who has a living to make at something else than laboratory studies in immunity cannot hope to read enough of the literature to know just what is being done in the ever widening field of serology. In bringing together this really tremendous wealth of material and in presenting it in such a clear and succinct fashion as to make it comprehensible, Simon has rendered valuable service. At last there is made available to the reader, who does not constantly think in terms of sidechains and who does not constantly see before his mind's eye most wonderfully constructed diagrams, an account which he can read with understanding and benefit. Immunity and the problems relating to infection are discussed from the standpoint of the sidechain theory. This is to be expected, since the Ehrlich doctrine has been the mainspring of so much of the work that has been done. Perhaps the objection may be made that Simon is too much inclined to accept without question whatever seems to support the sidechain hypothesis, and that he tends to underestimate the value of whatever is against the hypothesis. We are not so sure that the work of Bruck on drug hypersusceptibility is entirely conclusive; nor, on the other hand, are we convinced that the work of Vaughan, which seems to explain anaphylaxis in a simpler way than does the work of the Ehrlich school, should be entirely neglected. We agree that the *Gedankenreihe* which underlies Ehrlich's experimental chemotherapeutic work is masterful, but we are not all willing to admit that the chain of thought has had a real fruition in salvarsan or neosalvarsan.

The first eleven chapters, covering 165 pages, are devoted to an elucidation of the theoretical and experimental considerations of immunological work. The remaining four chapters, comprising 131 pages, discuss the practical applications of the findings to diagnosis and treatment. The clarity with which the theoretical and experimental sides of the subject are expounded and the judicious balance between theoretical and practical combine to make Simon's book one of very great value—to the practitioner even more than to the medical student.

O. T. S.

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**Making Good on Private Duty.** Practical Hints to Graduate Nurses. By Harriet Camp Lounsbury, R. N., President West Virginia State Nurses' Association, etc. Cloth, 208 pages, \$1.00 net. J. B. Lippincott Company, Philadelphia and New York, 1912.

"Making Good on Private Duty" offers many helpful, practical hints for the young graduate who, through lack of experience, is blind to many pitfalls.

The book could, however, be condensed, as every good training school devotes much time in the senior year on the special requirements for private duty and impressing on the young nurse what should be her attitude towards doctor, patient and family, as well as the ethics of her profession. The chapters on "The Nurse Herself," "Why do Nurses Complain?" "The Nurse and Her Leisure," and "Convalescence," contain valuable lessons for any nurse, for it does us all good to review our shortcomings occasionally. The young graduate might save herself many a blunder and humiliation, and find many a helpful suggestion by a timely perusal of this little book.

M. S.

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**Muscle Spasm and Degeneration in Intrathoracic Inflammations and Light Touch Palpation.** By Francis Marion Pottenger, A. M., M. D., LL. D., Medical Director of the Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California. Cloth, 105 pages, 16 illustrations, \$2.00. C. V. Mosby Company, St. Louis, 1912.

This book serves the purpose of emphasizing the importance of the condition of the muscles in intrathoracic diseases. Muscle spasm over acute processes and muscle atrophy over chronic processes are said to be quite constantly observed. The author also thinks the early auscultatory signs, including prolongation of the expiratory murmur as in apical tuberculosis, really originate in the changed tonus and conductivity of the overlying musculature. Lagging of one side of the chest in incipient tuberculosis, he considers a muscular effect of reflex origin rather than any loss of elasticity in the lung. Flattening of the chest is similarly explained. Percussion changes in early tuberculosis are also claimed to be due largely to muscle spasm rather than to lung infiltration. As a corollary to this conception of the muscular envelope of the body constantly giving information of underlying conditions, the author describes the method of light touch palpation. He testifies that he has found it reliable in outlining organs by checking it up with other methods of percussion, X-ray and by postmortem findings. This applies to the abdomen as well as to the chest. Abdominal effusions and tumors are outlined by palpation so light as to scarcely indent the skin. There is some tendency to repetition in subject matter, at least by inference. Perhaps also certain statements are a little extreme, but in general the book is of value in calling attention to a rather neglected feature in physical examination.

V. C. R.

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**Pathfinders in Medicine.** By Victor Robinson. With a Letter from Ernst Haeckel and an Introduction by Abraham Jacobi. Cloth, 317 pages, illustrated, \$2.50. Medical Review of Reviews, New York, 1912.

Those who have read anything written by Victor Robinson must be well aware of his expertness in the use of ink, of his skill in the putting

together of words into virile, readable English. And those who have read any of his biographical sketches, which appeared in the *Medical Review of Reviews* and other publications, will be glad to have the present collection in such accessible form. Possibly he emphasizes a little too strongly allusions to sexual matters; possibly he criticises too severely the unbelievable cruelty of the religious bigotry of the Dark Ages; and perhaps, to round a sentence or to make a telling point, he magnifies out of proper proportion minor or not well authenticated happenings in the lives of his "Pathfinders." In the opinion of the individual reader he may do any or all of these things; and yet, in spite of them, maybe we ought to say because of them, he is able to blow very much more of the breath of life and of reality into those of whom he writes than one expects or hopes to find in biographical sketches. One gets the impression that Galen, Servetus and the rest were at one time real, living, human beings, rather than disfigured marble statues concerning whom legendary snatches have come down to us. Praise is due him who can cause to glow again the glories of the luminaries of the past and who can make of the reading of their achievements a joy and a pleasure.

Those who are selected as pathfinders of medicine are: Galen, Aretaeus, Paracelsus, Servetus, Vesalius, Pare, Scheele, Cavendish, Hunter, Jenner, Laennec, Simpson, Semmelweiss, Schleiden and Schwann, and Darwin. These are not the only ones who have helped blaze paths through the wildernesses of medicine, but surely they constitute a gathering at whose shrines we may pay a moment's devotion with considerable profit to ourselves.

O. T. S.

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Practical Medicine Series. Vol. VI, Series 1912: General Medicine. Edited by Frank Billings, M. D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago; and J. H. Salisbury, M. D., Professor of Medicine, Chicago Clinical School. Cloth, 350 pages, 23 figures, 2 plates, \$1.50. Price of the series of ten volumes, \$10.00. The Year Book Publishers, 180 North Dearborn Street, Chicago.

This volume, reviewing the year's literature in medicine, reminds one again of the great value of the Practical Medical Series as an epitome of current medical literature. The present issue deals with infectious diseases and diseases of the alimentary tract, including those of the liver and pancreas. There is also a concise statement of the modern theories of immunity and vaccine therapy. In the abstracts of articles on diseases of the stomach, one readily sees that there are two view points, usually medical and surgical, which become so prominent that the reader can hardly feel that he is getting an unprejudiced interpretation of the facts. It seems unfortunate that there is not a more common ground, from which to approach these difficult problems. The critical remarks of the editors seem very fair, being based on the general consensus of opinion, as indicated in a broad view of the literature, rather than on their individual preference.

V. C. R.

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Building a Profitable Practice. Being a Text-Book on Medical Economics. By Thomas F. Reilly, M. S., M. D., Professor of Applied Therapeutics, Medical Department, Fordham University, New York City. Cloth, 290 pages, illustrated. J. B. Lippincott Company, Philadelphia and London, 1912.

Occasionally there is heard the lament, upon the part of the medical student or the just-beginning practitioner, that no time is given during the medical curriculum to a course of lectures upon the business side of medicine. The old-time lecturers on medical ethics and jurisprudence might let fall a few words of helpful advice, but in general the young doctor goes out into practice with no very definite ideas of the principles underlying his relations to other members of the profession, none of his

own legal rights or of those of his patients. Business methods, like the keeping and the collecting of accounts, he must work out for himself; and if he has not the natural born business ability which would make him more successful in commercial lines than in medicine, he usually works out his business system to his own harm.

Reilly's book overcomes this lack in the medical student's education by giving direct advice upon the most numerous and diverse subjects. It is surprising how many little details have been considered by the author, and "you" are told just what is best to do in all sorts of situations and under all sorts of conditions. Of the value of the advice given, some may be not quite so good as this, relating to the publication of papers which have been read, but certainly none could be any better for the medical profession as a whole: "mail it to the editor of a medical journal that you think worthy; don't send it to a journal subsidized by the proprietary and patent medicine people" (p. 75). We can begin to give no idea of the contents of the volume—"you" will have to read it yourself, and the reading will do you good, even if you have been in practice for a decade or two. Had there been such a book some ten years ago the reviewer might now be a wealthy as well as a well thought of practitioner, rather than merely O. T. S.

**Diseases of the Mouth.** For Physicians, Dentists, Medical and Dental Students. By Prof. Dr. F. Zinsser, Director of the Department of Dermatology at the City Hospital, Lindenburg; Dozent at the Academy for Practical Medicine, Cologne. Translated and edited by John Bethune Stein, M. D., Professor of Physiology at the New York College of Dentistry, New York City. Cloth, 269 pages, with 52 colored and 21 black and white illustrations, \$7.00 net. Rebman Company, 1123 Broadway, New York, 1912.

For some years the Rebman Company has been publishing translations of noteworthy foreign, especially German and French, medical publications. Although in a few of these—we recall particularly the Ehrlich-Hata "Chemotherapy of the Spirilloses"—the translating has been poorly done, in the majority the change into English has not decreased the value of the original and has been of service in making available to the reader texts which he could not otherwise use. More recently this firm has undertaken the reproduction of some of the illustrations which make German works so notable. In Zinssner's "Diseases of the Mouth" the Rebman Company has prepared a good and well edited translation of the original text, to which has been added a series of forty plates containing fifty-one excellently reproduced colored figures, as well as five other plates containing twenty halftones. The text gives a good, brief account of the oral manifestations of both acquired and congenital syphilis, and of the other conditions occurring in the mouth, which may simulate syphilis. The chief fault that we would find with the text is the evident unfamiliarity with scientific correct form in the use of species names. Some of these are italicized, others not; some are capitalized, others not; in very few is there the proper combination of italics, capitals and lower case letters. Lest we be considered hypercritical we hasten to admit that we consider this a minor fault in a medical text when the latter is otherwise good. The excellent plates are chiefly valuable in that they give the practitioner an atlas of a wide variety of conditions, any one of which he is apt to encounter, but all or most of which he cannot see unless he is working in a large clinic.

O. T.S.

**Digestion and Metabolism.** The Physiological and Pathological Chemistry of Nutrition. For students and physicians. By Alonzo Englebert Taylor, M. D., Rush Professor of Physiological Chemistry, University of Pennsylvania, Philadelphia. Octavo, 560 pages. Cloth, \$3.75 net. Lea & Febiger, Philadelphia and New York, 1912.

Text books which deal, as this one does, with the applications of the results of laboratory investigations in the interpretation of clinical experi-

ences are always a valuable asset to medical literature. Their appearance in increasing numbers year by year forms the best evidence we have of the growth of the scientific attitude in the study of disease, and it is most gratifying to all who are interested in this growth that the American contributions are keeping pace both in numbers and in quality with those of other countries.

In the present volume digestion and metabolism are discussed in an interesting and practical manner. As intimated in the preface, no attempt is made to cover the whole field of these subjects in an encyclopedic manner but rather to offer "a practical interpretation of them in their present state of development." In doing this the endeavor is made to describe every process in its relationship to a preceding one, or, to put it in the author's words, "to present the subject from the dynamic rather than the static standpoint."

When we come to examine the work, however, it is difficult to see that this attempt has been altogether successful. There are too many stages in the various metabolic processes regarding which our "static" facts are uncertain to make it possible to correlate them with any degree of accuracy. The attempt to do so with false data leads in many cases to confusion.

In our opinion this work suffers from a serious defect: the entire omission of references. We are expected to rely so implicitly on the exactitude of the author that we may take his statements of the results of others as being strictly according to the sense in which they were meant. It is obvious, however, that the enormous growth of biochemical literature makes it impossible that any one man could do this, and when we find, as in this book, some statement of fact about which we are in doubt it is certainly exasperating not to be able, by reference, to verify it either with regard to its authenticity or as to its interpretation. No doubt many books err too much in the opposite direction, they quote authorities unnecessarily, but to give *no* references even for debatable questions is certainly a still more grievous error. It may be well to specify a few of the statements in the book that are contrary to the views of most authorities, and for which authority should certainly have been supplied: thus, we are told that carbon monoxide does not produce glycosuria through oxygen hunger (p. 286); that glyceriol in the body could have originated only from glucose (p. 274); that excision of the adrenal glands must effect a more or less complete section of the splanchnic nerve (p. 205); that perfusion experiments on the liver are best done on certain toads (p. 249); that only isles of Langerhans are to be seen in the scar tissue left after ligation of the pancreatic ducts (p. 294). We are told, on page 245, that the variation in the glucose content of normal blood has not been properly studied, but we are not assured that the author has considered the immense amount of recent work in this connection by Rona, Michaelis, Frank, Bang, etc. We should at least like to know whether this work was consulted.

We consider it unfortunate that the author, without any apparent reason, should have thought it necessary to depart from the usual nomenclature in connection with the metabolism of carbohydrates. Thus, to designate the process of conversion of glycogen into dextrose, the term *glycolysis* instead of *glycogenolysis* is employed. But glycolysis is the term that is universally employed to specify the destruction of glucose. It is as firmly established a term as exists in medical literature, so that by its misuse in the present volume much confusion is created; for example, we are told on page 246 that "in phosphorus poisoning the sugar content of the blood sinks to almost nothing, *due to the abolition of glycolysis*," and again "throughout the course of diabetes this excessive activity of the glycolytic function of the liver is in evidence" (p. 311).

In criticising these features of the work, we do not desire to detract from our opinion of its general merit as a whole, for of this we are convinced. We think it only right and proper, however, to express freely

our judgment on two points to which the author specifically calls attention in his preface.

The work represents a large amount of earnest and thoughtful study and it is one which ought to fill an important place in American medical literature. It is well got up and thoroughly indexed.

J. J. R. M.

### Acknowledgements

Gesammelte Werke von K. G. Lennander. Im Auftrage der Universität zu Upsala. Unter Mitwirkung von Dr. K. H. Giertz, Prof. Dr. K. Petré, Dr. A. Petterson, Doz. Dr. Fr. Zachrisson und Prof. Dr. Hj. Ohrvall. Herausgegeben von Dr. Gustaf Ekehorn, Professor der Chirurgie an der Universität Upsala. Paper, three volumes of respectively 333, 667 and 333 pages. Price of three volumes, Kr. 27; Mk. 30. Almqvist & Wiksells Boktryckeri, Upsala and Stockholm, 1912.

The Practical Medicine Series. Vol. IX, Series 1912: Skin and Venereal Diseases, edited by William L. Baum, M. D., Professor of Skin and Venereal Diseases, Chicago Post-Graduate Medical School, Miscellaneous Topics, edited by Harold N. Moyer, M. D. Cloth, 237 pages, 14 plates, 2 figures, \$1.25. The Year Book Publishers, Chicago.

E. Merck's Annual Report of Recent Advances in Pharmaceutical Chemistry and Therapeutics. Vol. XXV. Paper, 508 pages. E. Merck, Chemical Works, Darmstadt, 1912.

Flatulence and Shock. By F. G. Crookshank, M. D., Lond., M. R. C. P. Hon. Physician to the Western General Dispensary, Marylebone, N. W.; Asst. Physician, The Belgrave Hospital for Children. Cloth, demy 8vo, 47 pages, 2s. net. H. K. Lewis, 136 Gower Street, W. C., London, 1912.

Skin Grafting. For Surgeons and General Practitioners. By Leonard Freeman, B. S., M. A., M. D., Professor of Surgery in the Medical Department of the University of Colorado, etc., Denver, Colorado. Cloth, 139 pages, 24 illustrations, \$1.50. C. V. Mosby Company, St. Louis, 1912.

Textbook of Ophthalmology in the Form of Clinical Lectures. By Dr. Paul B. Roemer, Professor of Ophthalmology at Griefswald. Translated by Dr. Matthias Lanckton Foster. Volume II. Cloth, pp. xv and 295, 61 figures and 2 colored plates, \$2.50 net. Rebman Company, 1123 Broadway, New York, 1912.

A Compend of Histology. By Henry Radasch, M. Sc., M. D., Assistant Professor of Histology and Embryology in the Jefferson Medical College, Philadelphia. Third Edition, revised and enlarged. Cloth, 363 pages, 111 illustrations, \$1.25 net. P. Blakiston's Sons & Co., Philadelphia, 1912.

The Practical Medicine Series. Vol. X, Series 1912: Nervous and Mental Diseases. Edited by Hugh T. Patrick, M. D., Professor of Neurology in the Chicago Polyclinic, Clinical Professor of Nervous Diseases in the Northwestern University Medical School; and Peter Bassoe, M. D., Assistant Professor of Nervous and Mental Diseases, Rush Medical College, Chicago. Cloth, 236 pages, 17 plates. The Year Book Publishers, Chicago.

Hygienic Laboratory, Bulletin No. 86. Collected Studies on Typhus. Washington, October, 1912.

Reprint from Public Health Reports, No. 101. Trachoma in Kentucky. Reports of Investigations into the Prevalence of Trachoma in the Mountains of Eastern Kentucky. By John McMullen, Passed Assistant Surgeon, U. S. P. H. Service. Washington, 1912.

Leland Stanford Junior University Publications. Trustees' Series, No. 22. Dedication of the Lane Medical Library, Leland Stanford Jr.



University, San Francisco, November 3, 1912. Addresses of Timothy Hopkins, Emmet Rixford, David Starr Jordan.

Reprint from Public Health Reports, No. 97. Smallpox in the United States. Prevalance and Geographic Distribution during the Calendar Year 1911. By John W. Trask, Assistant Surgeon General, U. S. P. H. Service. Washington, 1912.

Monthly Bulletin of the Department of Health of the City of New York. Vol. II, No. 11, November, 1912.

Publications of the Massachusetts General Hospital, Boston. Contributions of the Nineteenth Century to a Living Pathology. Ether Day Address, 1912, by William J. Mayo, Rochester, Minn.

Reprints:

The Present Position of Leprosy Research. By H. Bayon, Beit Memorial Research Fellow, Research Bacteriologist to the Government of the Union of South Africa. South African Medical Record, Cape Town, November, 1912.

The Treatment of Human Cancer with Intravenous Injections of Colloidal Copper. By Leo Loeb, M. D., C. B. McClurg, M. D., and W. O. Sweek, M. D., of St. Louis. Interstate Medical Journal, St. Louis, December, 1912.

The Fallacy of Fumigation. By J. T. Ainslie Walker, F. R. S. M., F. C. S., New York. New York Medical Journal, New York, October, 1912.

Disease Germs and Inefficiency. By J. T. Ainslie Walker, F. R. S. M., F. C. S., New York. Medical Times, New York, 1912.

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## Correspondence

Editor of *The Cleveland Medical Journal*: As a recent victim of a sensational "write up" of one of my surgical cases I am herewith giving you my experience with the *Cleveland Leader*.

On the evening of December 17th, I did a Cesarean operation in the presence of my senior class on a patient brought to me from Akron. Some misguided enthusiast evidently came in contact with a *Leader* reporter. Immediately on the morning following the *Leader* publicity I sent a special delivery letter to the *Leader* enclosing the following communication:

"Editor of the *Leader*: In the sensational "write up" of the Cesarean operation done by me on Tuesday night at the Huron Road Hospital and published in the *Leader* of December 18th, you have placed me in a position where I am liable to be unjustly criticized by my confreres of the medical profession. From what source your reporter obtained the data for the article I am unable to learn. No possible good can come from the publicity given this particular case.

"The Cesarean operation has now become a most common one and is performed almost daily in every large city by some surgeon. Akron has several surgeons entirely competent to perform such an operation, and one of the best hospitals in the State with 'white operating room, white gowned attendants, etc.' The patient came to me for two reasons, the first being the usual psychological one which is responsible for every human being in trouble desiring a particular physician or surgeon; the second reason, even more potent, was because it was exceedingly difficult for me to get to the patient in her home town.

"There is in my opinion too much publicity given in the secular press of Cleveland, with the usual erroneous impressions, to matters pertaining to the science and art of surgery.

Respectfully,  
(Signed) James C. Wood."

In addition to the foregoing the following personal letter was sent to the Editor of the *Leader*:

"My Dear Sir:—Will you be good enough to give the enclosed a somewhat prominent location in tomorrow's *Leader*, if you can spare the space. The medical profession is thoroughly disgusted with the manner in which these sensational 'write ups' in the daily press have been made, with the result of advertising the operating surgeon. I am naturally desirous of avoiding the impression that I am in any way responsible for the article referred to.

"Thanking you in advance for your courtesy, I am,

Very truly yours,

(Signed) James C. Wood."

The *Leader* has ignored both of these communications entirely and my only recourse is to give to the medical profession, through the two Cleveland medical journals, the facts.

Cleveland, December 23, 1912.

(Signed) James C. Wood.

**Diabetes Mellitus—Request for Information.** I am undertaking an exhaustive research into the pathology, etiology and dieto-therapy of Diabetes Mellitus. I am very anxious to hear from every physician in the United States who has a case under treatment, or who has had any experience in the treatment of this malady. Von Noorden says "the best treatment for the diabetic is the *food* containing the *greatest* amount of starch which the patient can bear without harm." If any physician who reads this has similar or contrary experience, and would take the trouble to write me, I would esteem it a special privilege to hear from him, if only a postal card. Kindly address,

William E. Fitch, M. D.,  
355 W. 145th St., New York City.

## Ohio State Board Examinations

Held at Columbus, December 10, 11 and 12, 1912

### Anatomy

1. Locate and describe the scapula.
2. What muscles extend the foot?
3. Describe the circle of Willis.
4. Give the origin and distribution of the pneumogastric nerve.
5. Describe the lungs.

### Physiology

1. Describe the vasomotor system and give the principal functions, especially as regards secretion and excretion.
2. Give two tests for proteins and one each for carbohydrates and peptones.
3. Describe the structure and function of the pancreas.
4. Describe the pulse and give the causes producing its peculiarities.
5. Describe the lymphatic circulation.
6. What is meant by intrapulmonic pressure and intrathoracic pressure and what effects do they have on blood pressure?
7. What is meant by bacterial digestion and what are the products?
8. Describe the mechanism of accommodation in the eye.
9. Describe fully the phenomenon of absorption.
10. Where is the seat of oxidation? Define internal respiration.

### Pathology

1. Describe the reparative processes after bone fracture.
2. Describe microscopic findings in lupus vulgaris.
3. What changes take place in arteriosclerosis?
4. What pathological changes occur in pericarditis?
5. Describe the pathology of gonorrheal arthritis.

**Diagnosis**

1. Mention physical signs of an acute diffuse peritonitis.
2. Mention physical signs of an abscess of the liver. How is it differentiated from typhoid fever and from suppurative pleurisy.
3. How do you diagnose gall-stones obstructing the common duct? Mention principal symptoms and give differential diagnosis from gastralgia and enteralgia.
4. Differentiate smallpox from varicella.
5. What are friction sounds in the thorax and what do they signify.
6. What is dyspnea and in what affections is it present?
7. In percussing the thorax for lung disease, what sounds may be elicited and what is their significance?
8. What is rhythm of the respiration, mention its irregularities and state their pathological significance?
9. In percussing the cardiac area, what indications do you derive from an abnormal area of dullness.
10. Differentiate organic from functional murmurs.

**Obstetrics**

1. What attention should a woman have prior to confinement?
2. What is the most important thing to attend to in a breech delivery and how would you do it?
3. What conditions would induce you to perform version?
4. Describe the three stages of normal labor and outline the management of each stage.
5. How would you prevent laceration of the perineum? What treatment would you undertake should it occur?

**Dermatology, Syphiology and Diseases of Eye, Ear, Nose and Throat**

1. Describe infantile eczema. Give causes and treatment.
2. What is psoriasis.
3. Scabies—how is it diagnosed? How is it treated?
4. Differentiate between chancroid and hard chancre.
5. Define and describe gumma.
6. What is myopia? How is it corrected by lenses?
7. Define and describe iritis, give causes and treatment.
8. Describe atrophic rhinitis. Give causes and treatment.
9. Describe chronic catarrhal inflammation of the middle ear.
10. Describe perichondritis of the laryngeal cartilages.

**Practice**

1. In what conditions does subnormal temperature occur?
2. Differentiate between cerebral and gastric vomiting.
3. Define renal and hepatic colic—hysteria and epilepsy.
4. What is Addison's disease? Give diagnosis and prognosis.
5. Give diagnosis of acute albuminuria.
6. Give differential diagnosis of typhoid fever.
7. Name two diseases affecting the glandular system and give treatment for each.
8. Describe a chill and name five diseases (nonmalarial) in which it is an initiatory symptom.
9. How would you manage a case of diabetes mellitus?
10. Name some causes of ascites.

**Materia Medica and Therapeutics (Regular)**

1. Describe the physiological action of diphtheritic antitoxin. Give immunizing and curative doses.
2. Name the two chief alkaloids of opium—give dose and therapeutic use of each. By whom is it poorly borne?
3. Name three important salines and describe their physiological action.
4. Give physiological action of ipecac. Name its preparations and give dose of each.

5. Name the preparations of aconite. Give dose and therapeutic value of each.
6. Name four preparations of iron. Give dose and use of each.
7. Name the preparations of mercury that may be used as cathartics, giving doses of each.
8. Name the various salicylates, giving dose and use of each.
9. Compare the action of chloroform with that of ether when used as an anesthetic. Give contraindications for the use of each and treatment for untoward effects of each.
10. Give diagnostic and therapeutic uses of the galvanic and faradic currents in infantile paralysis.

### Chemistry

1. Define and illustrate by an example each of the following terms: (a) acid; (b) base; (c) acid salt; (d) basic salt; (e) normal salt.
2. State the causes of temporary and permanent hardness in water and show how the same may be removed. (Use equations to make clear.) (b) State the general methods of purifying water and point out the effect of the same on public health.
3. (a) Give the preparation, properties and uses of ethyl alcohol. (b) What is meant by "denatured alcohol"? (c) Name any three substances that might be used as "denaturants."
4. What examination should be made of a given sample of milk in order to ascertain its fitness for drinking. (b) Outline the procedure to be followed in each on examination.
5. Give (briefly) one method for preparing each of the following substances:
  - (a) Ethyl Ether;
  - (b) Nitrous Oxide;
  - (c) Chloral;
  - (d) Acetanilid;
  - (e) Formaline.

### Surgery

1. Name three conditions demanding operation during shock. When would you give an unfavorable prognosis?
2. What is cancrum oris? How treat? Define noma pudenda.
3. Give treatment of tetanus.
4. What complications may arise in compound fractures?
5. Give symptoms and treatment of gastroduodenal ulcer.

**Inhalation of Dust, and Tuberculosis of the Lungs.**—On exposing normal guinea-pigs to the inhalation of various kinds of dust Cesa Bianchi found that more or less inflammation of the bronchial mucous membrane and enlargement of the peribronchial lymph-nodes would result, but that otherwise the conditions in the exposed were quite like those in normal animals. When guinea-pigs exposed to dust were infected with tubercle bacilli, however, they almost without exception perished from tuberculosis, the process running a much more rapid course, and the pulmonary involvement being much more pronounced in the exposed animals than in the control animals. The results did not seem to be modified by different kinds of dust. There developed in some of the animals an extensive cavity formation in various parts of the lungs, especially those in which the tubercle bacilli were introduced through the air passages. It appears then that inhalation of dust in the guinea-pig reduces the resistance of the lung tissue to tubercle bacilli so that it becomes a more favorable soil for their development. It is well known that in normal guinea-pigs it is difficult to produce a tuberculosis which is predominately localized in the lungs; in animals exposed to dust, however, this seems to take place readily, especially when the infection is introduced by way of the respiratory passages. These results corroborate the results of clinical experience and statistical study to the effect that the inhalation of dust of various kinds is harmful and favors directly the development of pulmonary tuberculosis. (*Jour. A. M. A.*)

## Decisions of the Governor and Attorney-General in Certain Appeals from the State Medical Board

In the matter of the Appeal of Dr. M. K. Lambright from an order of The State Medical Board revoking his license.

*To The State Medical Board:*

The Governor and Attorney General having heard and carefully considered the evidence on the Appeal of Dr. M. K. Lambright from an order of the State Medical Board revoking his license to practice medicine in the State of Ohio, do find that they sustain the charge on which such order was made by the said Board and do hereby dismiss the appeal and approve and confirm the order heretofore made by your Board.

Done at Columbus, Ohio, this 21st day of December, A. D., 1912.

(Signed) Judson Harmon,  
Governor.  
(Signed) Timothy Hogan,  
Attorney-General.

In the matter of the appeal of Dr. M. K. Lambright from the State Medical Board.

The Governor and Attorney-General having heard and carefully considered the evidence, find that it sustains the charge on which the order by the State Medical Board revoked the Doctor's license to practice medicine.

The charge that the Doctor accepted employment and lent his professional services in aid of a fraud upon the public conducted by one "phenomenal Kraus," the fraud consisting in Kraus taking a large amount of money from a man with a disease known to be incurable.

The appeal is dismissed and the order of the Board approved.

Columbus, Dec. 21, 1912.

In the matter of the Appeal of Dr. Levi W. Hunt from an order of The State Medical Board revoking his license.

*To The State Medical Board:*

The Governor and Attorney General having heard and carefully considered the evidence on the Appeal of Dr. Levi W. Hunt from an order of the State Medical Board revoking his license to practice medicine in the State of Ohio, do find that they do not sustain the charge on which such order was made by said Board and do hereby sustain the Appeal and hereby reverse and set aside the order heretofore made by your Board.

Done at Columbus, Ohio, this 21st day of December, A. D. 1912.

(Signed) Judson Harmon,  
Governor.  
(Signed) Timothy Hogan,  
Attorney-General.

In the matter of the appeal of Dr. Levi W. Hunt, from the State Medical Board.

The Governor and Attorney-General having heard the appeal from the order of the Board, revoking the license of Dr. Levi W. Hunt to practice medicine, have given the case most careful consideration. It is not easy on the testimony which is very conflicting, to determine the exact facts. But they concur in the conclusion that, considering all the circumstances, a clear enough case is not made out to justify them in approving the action of the Board. They therefore sustain the appeal and reverse the order.

Columbus, Dec. 21, 1912.

In the Matter of the Appeal of Dr. Clement L. Jones from an order of The State Medical Board revoking his license.

*To The State Medical Board:*

The Governor and Attorney-General having heard and carefully considered the evidence on the Appeal of Dr. Clement L. Jones from an order of the State Medical Board revoking his license to practice medicine in

the State of Ohio, do find that they do not sustain the charge on which such order was made by said Board and do hereby sustain the Appeal and hereby reverse and set aside the order heretofore made by your Board.

Done at Columbus, Ohio, this 7th day of January, A. D. 1913.

(Signed) Judson Harmon,  
Governor.

(Signed) Timothy Hogan,  
Attorney-General.

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### Medical News

*The United States Civil Service Commission* announces an open competitive examination for physician, for men only, on February 5, 1913. From the eligibles resulting from this examination certification will be made to fill a vacancy in the Indian Service at each of the following places, and vacancies as they may occur in positions requiring similar qualifications in any branch of the service, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

Navajo Agency (Tohatchi Boarding School), \$1,000 per annum; Cheyenne River Agency, South Dakota, \$1,000 per annum; Santee Agency, Nebraska, \$1,000 per annum; Western Navajo Agency, Arizona, \$1,200 per annum. Application may be made to the Commission at Washington or to the secretary of the board of examiners at any of the following Ohio cities: Canton, Chillicothe, Cincinnati, Cleveland, Columbus, Dayton, Ironton, Lima, Mansfield, Marietta, Portsmouth, Steubenville, Toledo, Youngstown, Zanesville.

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**The Surgeon General of the Army** announces that examinations for the appointment of Acting Dental Surgeons will be held at Fort Slocum, New York; Columbus Barracks, Ohio; Jefferson Barracks, Missouri; Fort Logan, Colorado; and Fort McDowell, California, on Monday, April 7, 1913. Acting Dental Surgeons are employed under a three years' contract, at the rate of \$150 per month. Application blanks and full information concerning these examinations can be procured by addressing the "Surgeon General, U. S. Army, Washington, D. C."

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**The United States Civil Service Commission** announces an open competitive examination February 17, 1913, for chief of the department of medicine, Philippine General Hospital, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in Manila, Philippine Islands, at a salary of \$4,000 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. It will not be necessary for applicants to appear at any place for examination. Their eligibility will be determined upon the evidence furnished in connection with application and examination Form B. I. A. 2 concerning their training and the work which they have accomplished. The Commission is advised that this position offers to the ambitious and capable physician opportunities which are far above the average. The Philippine hospital is probably the best institution of its kind in the Eastern Hemisphere, of 350 beds capacity, with an equipment which will compare favorably with that of any hospital in any part of the world. The new conditions, and the as yet undescribed diseases, that are constantly encountered furnish a wide field to one who is deeply interested in his profession. As a further aid to his work (which is wholly medical, the administrative duties being in charge of a superintendent) the Bureau of Science, which is on the hospital grounds, has one of the largest and most favorably

known research laboratories in existence. It is also stated that if after a year's trial the services rendered prove thoroughly satisfactory, promotion may be possible. The position is stated to be permanent during good behavior and satisfactory service. Statements as to training, experience, and fitness are accepted subject to verification. Applicants must have reached their twenty-eighth but not their fortieth birthday on the date of the examination. Persons who meet the requirements and desire this examination should at once apply for Form B. I. A. 2 to the United States Civil Service Commission, Washington, D. C.; the secretary of the board of examiners, post office, Boston, Mass.; Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, Ohio; Chicago, Ill.; St. Paul, Minn.; Seattle, Wash.; San Francisco, Cal.; customhouse, New York, N. Y.; New Orleans, La.; Honolulu, Hawaii; old customhouse, St. Louis, Mo., or to the chairman of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed, including the medical certificate, and filed with the Commission at Washington prior to the hour of closing business on February 17, 1913.

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**The Federation of State Medical Boards** will hold its annual meeting at the Congress Hotel, Chicago, on Tuesday, February 25, 1913. The following topics will be discussed: "Is Universal Reciprocity to be Desired?" "Should Medical Boards Require One or More Years of College Work Preliminary to the Study of Medicine?" "Should One or More Years in a Hospital be Required for Admission to the Examination for Medical Licensure?" "Rules and Regulations Governing Examinations for Medical Licensure." "Qualification of Examiners." "What Fee Should be Required for the Examination?" "Benefit of Having a Single Federation of State Medical Boards and Method of State Board Record Keeping." "Means of Keeping Politics out of State Board Affairs." These topics are all of practical and vital interest to medical colleges, medical examining boards, the profession at large and the public. Those contributing the papers on these subjects come with years of experience and no medical board can afford not to be represented. An earnest and cordial invitation to this meeting is extended to all members of State Medical Examining and Licensing Boards, teachers in medical schools, colleges and universities, delegates to the Council on Medical Education of the A. M. A., to the Association of American Medical Colleges and to all others interested in securing the best results in medical education and legislation. The officers of the Federation are Arthur B. Brown, M. D., President, New Orleans; George H. Matson, M. D., Secretary-Treasurer, Columbus, Ohio; James A. Duncan, M. D., Chairman Executive Committee, Toledo.

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**Two Years' Internship.**—Applications are asked to fill a vacancy of the staff of Good Samaritan Hospital, Guanajuato, Mexico. Guanajuato is a city of 60,000, the capital of the state of the same name. It is located 160 miles northwest of Mexico City. It stands at an altitude of 6,500 feet in a rich silver-mining region. The Mexican Central Railroad passes through the city. For this internship a man is required who has had a thorough medical education and who is prepared to make his professional knowledge and skill directly subservient to the furtherance of the gospel. Communications may be addressed to the director of the hospital, Dr. Levi B. Salmans, Good Samaritan Hospital, Guanajuato, Mexico.

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**The Mary Putnam Jacobi Fellowship.**—The Woman's Medical Association of New York City offers a fellowship of \$800 for graduate study. It is open to any woman graduate of medicine not on competitive examination, but on proof of ability and promise of success in the chosen line of work. Applications must be received by April 1, accompanied by testimonials as to good health, ability and character; details of educational qualifications; a statement of the work proposed while holding the fellow-

ship; and examples, if any, of work, in the form of articles, or accounts of investigations carried out. The fellowship will be from October 1, 1913, to October 1, 1914. Two reports will be expected, one about the middle of the work and a detailed report on its completion. All applications should be sent to Dr. Emily Lewi, Chairman, Committee on Awards, 35 Mt. Morris Park West, New York.

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**The Southern Surgical and Gynecological Association**, at its annual meeting held in Newport News, December 17-19, selected Atlanta as the next place of meeting and elected the following officers. President, John Young Brown, St. Louis; Vice-Presidents, Ap Morgan Vance, Louisville, and Lomax Gwathmey, Norfolk; Secretary, W. D. Haggard, Nashville; Treasurer, LeGrand Guerry, Columbia, S. C.

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**The Western Surgical Association**, at its annual meeting in Cincinnati, December 21, elected Jabez N. Jackson, Kansas City, Mo., President; J. Rilus Eastman, Indianapolis, and Major G. Soelig, St. Louis, Vice-Presidents; Arthur Mann, Minneapolis, Secretary-Treasurer, and Lewis L. McArthur, Chicago, a member of the Executive Council. St. Louis was selected as the meeting place for 1913.

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**The Nu Sigma Nu Fraternity**, at its annual convention held in Baltimore, November 29 and 30, elected the following officers: President, H. W. Stiles, Syracuse, N. Y.; Secretary-Treasurer, E. E. Irons, Chicago.

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**The Southern Conference for the Eradication of Hookworm** held its annual session at Little Rock, Ark., December 18 and 19, and elected the following officers: President, Olin West, Nashville; Vice-Presidents, A. G. Fort, Atlanta, and La Bruce Ward, Charleston; Secretary-Treasurer, S. D. Porter, New Orleans.

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**The Congress of American Physicians and Surgeons** will meet in Washington, May 6 and 7. In addition to the programs of the fourteen national societies which constitute the congress, there will be presented the following general program: May 6, at 2:30 p. m., "On the Study of Renal Function"; papers by Prof. Carl Schlayer, of Munich, Germany, and L. G. Rowntree, of Baltimore. At 8 p. m., the President's address, "Sanitation at Panama as it Relates to Sanitation in the Tropics Generally," by William C. Gorgas. May 7, at 3 p. m., a symposium "On the Development of Tissues in Vitro," with the following papers: "The Life of Tissues Outside the Organism from the Embryological Standpoint," by R. G. Harrison, of New Haven; "The Life of Tissues Outside the Organism from the Physiological Standpoint," by M. T. Burrows, of New York; "The Life of Tissues Outside the Organism from the Pathological Standpoint," by R. A. Lambert, New York.

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**Physicians' Travel Study Tour.**—The International Medical Congress meets in London, August 6 to 12. In the connection with the congress it has been proposed to organize a physicians' tour for travel study, similar to that of German physicians in this country during the recent Congress on Hygiene and Demography. The plans propose leaving New York July 3 for the most important capitals and health resorts on the European Continent: Paris, Munich, Carlsbad-Marienbad, Dresden, Berlin, Nauheim, Wiesbaden, Cologne, Brussels, the Hague, Amsterdam, etc., ending with the week of the congress in London. Information may be obtained from Richard Kovacs, M. D., 236 East 69th Street, New York City.

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**Historical Medical Exhibition.**—In connection with the International Medical Congress in London, an exhibition of rare and curious objects relating to medicine, surgery and pharmacy and the allied sciences is being organized by Mr. Henry S. Wellcome.



**Brigadier-General George H. Torney** is to be reappointed surgeon-general of the Army.

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**Naval Surgeons Honored.**—Surgeons S. S. Rodman and I. S. K. Reeves and Drs. D. C. Cather and W. E. Eaton, U. S. Navy, were given medals by the government of Santo Domingo for their services in attending the wounded at the battle of Azua.

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**Harry Lane**, member of the Oregon State Medical Association and of the American Medical Association, who, as mayor of Portland, delivered the address of welcome to the American Medical Association at the Portland meeting in 1905, has been elected to the United States Senate.

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**School Medical Inspection in Ashtabula** has been abolished by the action of the board of education.

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**A Conference of Municipal Boards of Health** with the State Board of Health was held in Columbus, January 23 and 24.

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**Investigation of Occupational Diseases.**—The State Board of Health will ask the legislature for an appropriation of \$6,000 for 1913 and 1914, to be used in the investigation of occupational diseases.

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**The Trustees of the Miami Valley Hospital**, Dayton, have reappointed Webster S. Smith chief of staff; C. W. King, C. H. Breindenbach and George Goodhue physicians on the medical staff; F. Dale Barker and William E. Ewing on the surgical staff; A. H. Dunham, F. Dale and W. E. Ellman, obstetricians; H. B. Harris and H. D. Rinehart, oculists and aurists, and W. J. Conklin and J. A. Davison, members of the consulting staff.

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**A. S. Cooley**, of Cleveland, was elected president of the Ohio State Veterinary Association at its annual meeting held in Columbus, January 8.

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**State Board Examinations.**—As the result of the examinations held in Columbus, December 10, 11 and 12, licenses have been issued to the following: Lewis A. Oster, Nicholas F. Curtis, Locke E. Heabler, John A. Meek, George P. O'Malley and Herbert Raymond Graves, Cleveland; Peter A. Tobin and Julien E. Benjamin, Cincinnati; Leroy W. Hoon, Youngstown; John S. Smith, Canton; Edward C. Banker, Akron; J. Craig Bowman, Upper Sandusky; George W. King, Lima; Luigi Valerio, Cincinnati, and William O. Bonser, Toledo. These passed the examination for certificates as osteopaths: Erwin H. Pheils, Toledo, and John D. Baum, East Liverpool.

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**Governor Cox** addressed a conference of the various medical, dental and pharmaceutical societies of the state, arranged by the secretary of the State Board of Health, at Dayton, December 26.

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**County Society Meetings.**—Montgomery county, at Dayton, December 6; officers were elected as follows: W. C. Marshall, Dayton, President; W. B. Keever, Centerville, C. D. Smith, Dayton, and C. T. Hunt, Miamisburg, Vice-Presidents; C. C. McLean, Dayton, Secretary; W. F. Prather, Dayton, treasurer.—Licking county, at Newark, December 19; J. F. Baldwin, Columbus, delivered the address, "Some Practical Points in Obstetrical Surgery." The following officers were chosen: Clark Hatch, President; J. P. H. Stedem, Vice-President; Harry Hunt,

Donaldson, of Lorain, was elected President; C. P. Clements, of Elyria, Secretary-Treasurer.—Lorain county, at Lorain, December 10; J. B. Vice-President; W. S. Baldwin, of Lorain, Secretary; Evan Cameron, of Lorain, Treasurer; the society was addressed by H. L. Sanford of Cleveland.—Belmont county, at Bellaire, December 10; the new officers are: J. M. Meek, of Bellaire, President; C. B. Messerly, of Martin's Ferry, Vice-President; A. C. Beetham, of Bellaire, Secretary; J. S. McClellan, of Bellaire, Treasurer. J. C. M. Floyd, President of the Ohio State Medical Association, delivered an address on "Preventable Diseases, their Causes and Prevention."—Pike county, at Waverly, December 2; the following officers were elected: L. E. Wills, President; J. L. Caldwell, Vice-President; E. M. Dixon, Secretary-Treasurer.—Montgomery county, at Dayton, December 13; J. M. Rector, of Columbus, read a paper on "Motor Insufficiency of the Stomach."—Miami county, at Troy, December 12; A. J. Bausman, of Pleasant Hill, was elected President; Robert Kunkle, Vice-President; John Price, Secretary-Treasurer.—General Practitioners' Society, at Columbus, December 12; John Rauschkolb was named President; Alice D. Johnston, Vice-President; Harry D. Myers, Secretary; W. D. Murphy, Treasurer.—Darke county, at Greenville, December 12; the election of officers resulted as follows: President, J. O. Starr, of Pittsburg; Vice-President, Donavan Robeson, of Greenville; Secretary-Treasurer, J. E. Hunter, of Greenville.—Allen county, at Lima, December 17; R. D. Kahle, of Lima, was elected President; L. F. Hauman, of Cairo, Vice-President; E. A. North, of Lima, Secretary; A. F. Basinger, of Lima, Treasurer. Attorney T. R. Hamilton addressed the society on "Medical Jurisprudence."—Kenton-Campbell counties, at Covington; J. B. Murphy, of Chicago, delivered the address.—Madison county, at Columbus, December 18; officers elected were: President, W. F. Smeltzer; Vice-President, H. P. Sparling; Secretary-Treasurer, J. W. Parker, all of London.—Portage county, at Kent, December 18; in a symposium on chronic nephritis papers were read by E. J. Widdecombe, B. H. Nichols, L. A. Woolf and E. B. Dyson.—Seneca county, at Tiffin, December 19; the following were chosen officers. R. R. Hendershott, President; H. B. Gibbon, Vice-President; G. W. Williard, Secretary; Victor Magers, Treasurer.—Clark county, at Springfield, January 6; the following officers were elected: Frank Anzinger, President; C. W. Russell and Carl Ultes, Vice-Presidents; C. L. Minor, Secretary; J. E. Studebaker, Treasurer.—Summit county, at Akron, January 7; officers elected: G. M. Logan, President; D. H. Morgan, Vice-President; A. S. McCormick, Secretary; H. C. Theiss, Treasurer. The program was as follows: "The Treatment of Pneumonia in Infants and Young Children," by J. A. Hulse; "Otitis Media," by T. K. Moore.—Marion county, at Marion, January 7; the following officers were installed: President, J. B. Taylor; Vice-President, A. M. Crane; Secretary-Treasurer, J. W. McMurray.—Ashland county, at Ashland, January 7; the program was as follows: "The Anatomy of the Stomach," by W. F. Emery; "The Physiology of Digestion," by W. M. McClellan.—Muskingum county, at Zanesville, January 8; J. C. Crossland read a paper on "Contract Work," G. W. McCormick one on "Smallpox," and Major Fuller, U. S. A., one on "Typhoid Fever."—Darke county, at Greenville, January 9; T. R. Brown, bacteriologist of the State Board of Health, read a paper on "Epidemic Sore Throat."—Shelby and Miami counties, joint meeting at Sidney, January 9; the program was as follows: "The Prevention of Puerperal Eclampsia," by S. D. Hartman, of Tippecanoe City; "Some Advances in X-ray Diagnosis in Internal Medicine," by S. O. Lange, of Cincinnati; "Diagnosis and Treatment of Hysteria," by H. H. Hoppe, of Cincinnati.

**Personal.**—Frank Thomas, assistant physician at the Hospital for Feeble-Minded at Columbus, has been appointed physician at the Boys' Industrial School at Lancaster.—T. A. McCann, of Dayton, has been

re-elected vice-president of the State Medical Board.—G. M. Beckett, of McLeansboro, Illinois, has been appointed special pension examiner at Portsmouth.

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**Ill and Injured.**—M. W. Bland, of Bellevue, and O. T. Maynard, of Elyria, have been ill at the Lakeside Hospital, Cleveland.—E. E. Tope, of Scio, was operated for appendicitis at Columbus.—F. F. Lehman, of Sandusky, has been ill with pneumonia.—F. P. Miller, of Bellefontaine, was operated for hernia at Toledo.—Frank Makemson, of Lewiston, received a fracture of the arm when his buggy was demolished by a rebounding gate.—W. C. Patty, of Pleasant Hill, is seriously ill as the result of a stroke of paralysis.—Charles Hoyt, of Chillicothe, is reported seriously ill.

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**Removals.**—H. H. Bainter, from Dundee to Dresden.—E. J. Burnett, from St. Paris to Ironton.—Bert Endsley, from Cleveland to Burton.—G. R. French, from Orville to Burton.—Theodore Myler and Walter Orbin, from Pittsburgh to Burton.—C. E. Johnston, from Sidney to Anna.

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**Contagious Diseases.**—During January cases of smallpox occurred at Salineville and Cambridge; at Cedarville schools were closed because of diphtheria, and at Lisbon because of scarlet fever.

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**Expelled by County Society.**—Armin Lowen, of Youngstown, has been expelled from the Mahoning County Medical Society because of unethical advertising. L. B. Smith and R. H. Barnes, of Youngstown, who pleaded guilty to the illegal selling of cocain, were also expelled by the same society, which further recommended the revocation of their licenses.

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**A. T. Novy**, "chiropractician," with offices at Euclid Avenue and East 55th Street, Cleveland, was fined \$300 and costs for unlawfully practicing medicine.

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**The Lakeside Hospital Alumni Association**, at its annual meeting on January 28, was addressed by C. A. Hamann, dean of the medical faculty of Western Reserve University, on "Sir Astley Cooper and His Times."

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**The Charity Hospital Medical Society** met Wednesday, January 15. The program was as follows: 1, Presentation of Medical Cases, by D. Selman. 2, Presentation of Surgical Cases, by F. B. Oldenberg. 3, Presentation of Gynecological Cases, by W. C. Barnard. 4, Recent Advances in the Treatment of Syphilis, by H. N. Cole. 5, Influence of Water Drinking at Meals, by J. D. Pilcher. The following officers were elected. President, N. P. McGay; Vice-President, J. D. Pilcher; Secretary-Treasurer, S. H. Monson.

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**Robert Pollock**, who went from Cleveland to California a year ago because of ill health, has engaged in practice at San Diego.

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**R. H. Birge, Howard Dittrick and Wm. H. Weir** have removed their offices to 524 Osborn Building. Carlyle Pope also has offices at this address.

## Deaths

**William Carey Davis**, New York University, New York City, 1879; of Granville; died December 4, aged 65.

**Girard Bailey**, Medical College of Ohio, Cincinnati, 1868; of Rockford; since 1894 a member of the local pension board; died December 9, aged 71, of heart disease.

**Frank Seba Jones**, Rush Medical College, 1876; of Medina; died December 18, aged 65, of arteriosclerosis.

**John William Sorrick**, Medical College of Ohio, Cincinnati, 1875; of Kenmore; a member of the One Hundred and Ninety-first Ohio Volunteer Infantry during the Civil War; died December 15, aged 64.

**John Newton Ranger**, University of Vermont, 1888; of Columbus; died December 11, aged 45, from pneumonia.

**Hills Adnett**, at one time a surgeon in the British navy and during the past thirty-five years a practitioner in Lakewood, died December 19.

**Joseph R. Skidmore**, Miami Medical College, Cincinnati, 1868; of West Mansfield; died December 22, aged 82, of nephritis.

**Guy Carlos Marsh**, Cleveland University of Medicine and Surgery, 1889; for twenty-one years a practitioner at Galion; died December 25, aged 48.

**William Henry Shank**, Cincinnati College of Medicine and Surgery, 1890; of Burton; died December 29, aged 49, of pneumonia.

**J. Royston Ford**, Cincinnati College of Medicine and Surgery, 1880; of Greenville; died January 1, aged 68, as the result of injuries sustained when his automobile was struck by a freight train at a grade crossing.

**H. R. Arndt**, Cleveland University of Medicine and Surgery, 1869; of Cleveland; field secretary of the American Institute of Homeopathy; died January 2, aged 67, of pneumonia.

**Peter Willett**, Western Reserve University, 1864; of Elmore; a surgeon in the federal army during the Civil War; for fifty-two years in active practice; died January 2, aged 79.

**William H. Shaw**, for twenty-five years a practitioner at Dayton, died January 4, aged 70.

**Henry W. Baker**, of Barnesville, of which he was mayor during twenty-five years; retired at the age of 80; died January 4, aged 84.

**Walter Underwood**, Indiana Eclectic Medical College, Indianapolis, 1884; of Springfield; doctor and Methodist preacher; died January 4, aged 78.

**Peter Donnelly**, Jefferson Medical College, 1895; of Toledo; surgeon to the police and fire departments and to the Lake Shore railway; died January 4, aged 44, being drowned when his automobile was driven off the dock into the Maumee River.

**J. W. Carson**, Western Reserve University, 1892; of Bergholz; prominent in local business and professional circles and surgeon for the Lake Shore railway; died January 5, aged 51, of angina pectoris.

**Joseph McFarland**, Cleveland University of Medicine and Surgery, 1852; of Corsica; died January 5, aged 86; doctor and preacher; "he has been the most interesting personality in the lives of the people of his community. He had been present at their birth, officiated at their baptism, received them into the church, performed their marriage ceremonies, and preached the final sermons at their funerals."

**Charles Flint Kline**, University and Bellevue Hospital Medical College, 1903; of Portsmouth; surgeon to the Norfolk & Western railway; died January 7, aged 35, of cerebrospinal meningitis.

**Robert C. Alexander**, College of Physicians and Surgeons, Keokuk, Iowa, 1883; of Wyandot; died January 8, aged 63, of apoplexy.

**W. B. Cozad**, of Wapakoneta; in practice, previous to his retirement one year ago, for fifty years; died January 11, aged 80, of apoplexy.

**J. L. Quinn**, Miami Medical College, Cincinnati, 1869; coroner of Preble county; died at Eaton, aged 71.

# The Cleveland Medical Journal

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VOL. XII

FEBRUARY, 1913

No. 2

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## The Traumatic Neurosis: A Retrospect and a Forecast

By PEARCE BAILEY, M. D., New York City, President of the  
American Neurological Association

Considered retrospectively, the traumatic neuroses fall naturally into three periods: First, the initial, organic period of Erichsen; second, the functional period, made possible by the work of Charcot; and the third, modern analytical period, the period which has encouraged the psychological dismemberment of hysteria. While these disorders existed before Erichsen's time, their history dates from the appearance of his book, which came stamped with the great authority of England's foremost surgeon. It had an enormous sale, ran through many editions, and its influence even today is not entirely eradicated. By publishing the amounts of money paid plaintiffs by corporations which had injured them, it showed how important a railway injury might be as a personal asset; and brought to the attention of medical men and lawyers alike the devastating effects which railway and allied accidents may exert on the human nervous system. Under the heading of "Spinal Concussion," a term no one knew the exact meaning of, Erichsen brought together a great number of clinical conditions which had no relation to one another except in so far as any of them might appear in the victims of railway or other casualties. Fracture of the spine, locomotor ataxia, hysteria and other conditions were all included as examples of spinal concussion. At this time neurology was too much in its infancy to permit Erichsen's pronouncements to be disproved or even challenged; and the book, keeping pace with quickening facilities of transportation, went everywhere where railways went, and always was a terror to those who operated them. For

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*Presented before the Medico-Legal Section of the Academy of Medicine of Cleveland, Friday, November 29, 1912.*

no injury was too trivial to fail of a counterpart in the monograph, and one of the most lasting of Erichsen's teachings was that the injured person might for a long time think himself unharmed, to finally develop some of the dread symptoms. While Erichsen used the word "hysteria" it is doubtful if he realized the purely mental origin of some of the cases he described. And the impression left on the reader's mind is that spinal concussion is an organic injury from which recovery is extremely doubtful.

As knowledge of the anatomy and physiology of the nervous system, and the symptoms or its diseases progressed, some of the errors of Erichsen's work became apparent. It became evident that a fracture of the spine was the same whatever the accident that caused it, and that locomotor ataxia, developing in direct sequence to a railway collision, did not deny that the man who developed it had had syphilis, or that he would not have become ataxic without any accident. But while these frankly organic cases found their true places with advancing knowledge, it took much longer for the purely functional nature of imposing physical symptoms to be recognized. And when this happened, in Charcot's great days at the Salpêtrière, the traumatic neuroses entered the second or functional period of their history. By this time the science of localization in the nervous system had become sufficiently exact to make it possible to infer that certain definite symptoms always coincided with certain circumscribed lesions in the brain or spinal cord. These symptoms concerned motion, sensation, the special senses and various reflex phenomena; in the presence of these, the inference of disease or injury at definite points of long fibre tracts or of cell collections was plain and inevitable.

The lesions which caused such symptoms consisted in injury or destruction of the very delicate structural elements of the central nervous system; they were either irreparable in whole or in part, or, if the injury were slight enough or of a character to permit repair, recovery was slow and followed a characteristic course. In such cases sudden miraculous cures were out of the question. But in legend and in history, as well as in everyday life, as every one knows, the maimed, the halt and the blind are cured overnight by some sudden inspiration, by the influence of some magnetic healer, by the application of some charm or mystic remedy. Charcot, starting with the assumption that such recoveries were entirely irreconcilable with destruction of the

nervous system, was soon able to point out in what respects the lameness and the blindness or whatever it was that disappeared so suddenly and so mysteriously differed from like infirmities due to organic disease, and also that, while the functional symptoms imitated the organic ones with sufficient exactness to have deceived physicians for centuries, they nevertheless presented differences enough to permit them to be recognized by the knowing as counterfeits. He showed in detail and with accuracy the respects in which hysterical paralysis or blindness or loss of sensibility differed from the same symptoms of organic origin; and his teachings stand today unchallenged in most respects. Charcot studied the neuroses in general; but it was not long before his results began to be applied in the diagnosis of the nervous disorders which follow railway and other accidents. Erichsen had taught that these disorders resulted from the physical jarring of the accident. But, in view of the exclusion of a recognizable physical basis for them, the physical effects of such accidents had to give way to the effects on the mind, brought about by the horror and anguish of spirit, which few who are in such casualties can wholly escape. These mental impressions may react in various ways, but in many persons they determine that form of hysteria which Charcot particularly described, namely, the hysteria which causes a mimicry of physical symptoms. And in the general classifications of the traumatic neuroses, during what I have called the functional period, the term "traumatic hysteria" was limited to this form of neurosis almost exclusively, the term "neurasthenia" being reserved for the cases in which the symptoms were wholly subjective, in which the physician must depend upon his own knowledge of the ways of disease and the varieties of human nature to determine in how far the complaints of the patient, in the face of negative physical examination, represented actual suffering or disability.

So for many years, during the functional period of their history, the traumatic neuroses consisted of traumatic hysteria, such as Charcot described, and of traumatic neurasthenia. There were other neuroses advanced from time to time as characteristic of accidents, but these two were the chief and most important ones.

These neuroses being so frequently the bases of litigation, or of indemnity under insurance policies or workmen's compensation acts, it became extremely important to have their character-

istics known not only to surgeons and medical men, but to adjusters, attorneys and to all employers in occupations which might prove hazardous to others. As a consequence, descriptions of the traumatic neuroses were soon to be found in general textbooks, in medicolegal treatises and in monographs. Efforts were made by the various authors to keep the two diseases distinct so that, in spite of a common cause, traumatic hysteria was described with its own peculiar symptoms, course and prognosis, and traumatic neurasthenia with its own. As has been said, the term "hysteria" was generally reserved for those cases in which the neurosis externalized itself in some objective physical way, by some exaggeration or suppression of function which caused some glaring physical defect, apparent to everyone. Such cases came to be denominated in terms of the particular symptom which was most in evidence, e. g., hysterical convulsions, hysterical hemiplegia, etc., a pernicious custom, as the physician occupied himself more with the false physical conditions than with the subtle psychological cause which determined it. These physical symptoms differentiated, apparently, hysteria from neurasthenia quite sharply. This latter disease was described as a neurosis of nutrition, due to fatigue. It did not escape notice that both diseases had many subjective symptoms in common, and that both were strongly influenced by the social conditions with which they were complicated. In this country the damage claim was the fence that must be jumped before the patient was well again; in Germany it was the Employers' Liability Law which, providing support for the injured person as long as he was unable to work, set a prize on indifference, indolence and invalidism, thus postponing recovery for years or forever.

The views as to the nature of the traumatic neuroses as just set forth are the ones now current—that is, the two archetypes of them are considered and described as separate disorders and so are still in the functional period of their existence. The third or analytical period which is just opening has been made possible by the work of Binet, of Janet, Sidis, Freud, Jung and others. The spirit of it is that the old conception of the traumatic neuroses, as distinct limitable diseases, must give way to the hypothesis that every neurosis is a personal matter with the individual who entertains it, that the way it manifests itself depends upon the patient's personality, how that personality has been evolved and elaborated, the strength and nature of the desires



and motives which actuate it and how the new adverse conditions have upset it. By this hypothesis the traumatic neuroses as a group of diseases are replaced by a disorder of personality, which we may call a traumatic neurosis if we like, but which consists in nothing more or less than a faulty psychological adjustment, which may take place in almost anyone after an accident, when certain conditions are present. The faulty adjustment may appear as symptoms which cause suffering and disability; and the necessary conditions are to be found in the character of the accident itself, the state of mind of the individual at the time of the accident, the state of mind after the accident (this being influenced in many different ways), and, finally, the symptomatic manifestations, which are determined by various factors, some of them conscious, some of them unconscious, and nearly all of them influenced in some way by suggestion.

1, **The exciting cause:** It is assumed at the outset that the injury has not affected the central nervous system in a material way. And here it must be stated that the exclusion of organic disease must be rigid. In many cases which would have passed for functional in the past, the X-ray may now show small lesions in the bones of the spine, or tests of the blood-serum or cerebrospinal fluid may reveal forms of cerebrospinal syphilis hitherto unrecognized. And doubtless some of the disorders of the ductless glands have been accepted as neuroses. Only when such stumbling blocks are out of the way is one justified in considering the functional features of the case. Railway accidents more than any others furnish this type of injury, but it is difficult to conceive the mental effects of a railway collision without having been in one. My conceptions were illuminated a year ago by a head-on collision, as a result of which both engines were demolished and two trainmen killed. I was sitting in the second car back of the engine, in which there were light, movable chairs, but no fixed seats. A crash, the sound of breaking glass, a sensation of sliding, followed by a sense of profound silence is all that I remember until I found myself going out the rear door, after the car, which was not derailed, had come to a full stop. There were at least twenty men in the car, but I remember seeing none of them after the accident, except one who walked out the door the same time that I did; I had been thrown from my chair and projected along the floor many feet, as my clothes were badly soiled and slightly torn. At the same time my head

could not have been injured, as I found my hat still on. Without any injury to the head, or other physical injuries which could have affected consciousness, I had undergone a brief suspension of consciousness, with lapse of memory and dulling of sensibility, this latter being shown by two physical injuries of which I was unconscious for some time, viz., by an abrasion of the leg severe enough to require three weeks to heal, and a slight sprain of the right shoulder, which was lame for some time. My slight suspension of consciousness was soon succeeded by a variety of emotions; fear, in stepping out from a broken car on a rainy winter morning over wreckage which was burning, and at the constant, angry snapping sparks of short circuited electric wires; pity and horror, at the sight of moaning women, some bleeding, and of the two dying trainmen, one of whom had been scalded from the waist down. This fear was succeeded by anger at the outrage that we all had innocently been subjected to, as the accident was inexcusable and one of those which should never happen. But no passenger was seriously injured; we all were speedily and safely transported to our destination, and, although nervous and upset for a day or two afterwards, the incident was soon crowded from my mind by matters that seemed to me more important. But the momentary dazing, the anger and the timidity and uncertainty which succeeded it, brought home to me how profoundly mental mechanisms can be upset by severe psychic traumata. Emotions are loosened from control, independence of will gives way to uncertainty and timidity, thought is replaced by credulity, which may easily become suggestibility. I can readily believe, had I been ignorant of all psychology and been put to bed by some physician who looked grave and shook his head when he examined my spine, that I might have developed a neurosis. As it was, I felt my heart sink when solicitous friends assured me that while I seemed all right, I might feel some very serious effects after a week or two.

Such mental states as the above may easily be the starting points of neurosis, depending on the other conditions to be described.

2, **The state of mind at the time of the accident:** By this is to be understood the mental condition of the individual for several days or weeks before the accident occurred. It has been forced home to me more and more that many of the victims of traumatic neuroses were by some chance coincidence in

an unstable mental state at the time of the accident. This mental state may not have been sufficient to be pronounced as abnormal, and, in fact, both the plaintiff and his relatives declare usually that just before the accident he was as well as before. But in a number of recent cases I have discovered that whereas externally the individual may have presented no changes noticeable to others he had been undergoing some mental conflict with himself; some condition in his life, either physical or social, had been troubling him so that he had been looking around for some solution, without finding one. As an example I may cite the case of a young man who, after a severe automobile accident, developed a neurosis, the chief characteristic of which was loss of memory. The period of all that had happened for years before the accident had been wiped from his mind, the case resembling in many respects that of the Rev. Mr. Hanna reported by Sidis. But examination, by means of association, soon brought to light the fact that this young man, at the time of the accident, was in great difficulties financially, that his accounts were irregular, and that he had done things which might have caused his arrest. The trend of his neurosis followed his personal interest. He did subconsciously what he wanted and needed to do consciously—he forgot the past. In another case, a lady sustained a very slight injury, in sequence of which she went to bed, and said that she was unable to walk. Her gait was that characteristic of *astasia-abasia*. It was soon discovered in her case that prior to the accident she had been tried almost to the breaking point by her domestic arrangements, that she had come practically to the point of believing that life at home under present conditions was futile and impossible; and it was just at this time that the accident came along and upset her equilibrium absolutely.

**3, The state of mind after the accident:** In speaking of the exciting cause, it was described how psychic shock can destroy a mental balance and place the mind in a condition of great suggestibility. By doing this, it does much more, for by lifting the inhibitions which are the result of years of experience and reason, it forces the mind back to mechanisms which are primitive. Under such circumstances take place mental operations which are entirely subconscious, or they may be states of mental action between the subconscious and the entirely conscious. As a result of this the mental mechanisms revert or

regress to primitive or infantile forms, so that we can plainly see the two fundamental motives by which we all are actuated, fear and desire. These are the central springs of the ego, the two components of the instinct of preservation, which begin to appear in the lowest animal scale. To understand these primitive mechanisms which in a developed man are in great part subconscious, one must go back to the original development of character and clearly understand the two fundamental motives by which all our personalities are originally actuated. These two motives are fear and desire. With a newly born animal or man there come certain hereditary instincts, thanks to which, during the period before the full development of consciousness, life is maintained. These instincts are the instincts of nutrition, as is shown by the tendency of the infant to feed itself; and, second, the instinct of defence against danger, shown originally by the reflex withdrawal of the parts which the peripheral stimulation indicates are in danger. As consciousness proceeds in its development, these instincts are elaborated by personal experience, until finally the individual is able to choose for himself, to a certain extent, the means by which he can continue his life and protect himself against danger. But he has accomplished these two ends by the two motives which have been mentioned, desire and fear; desire, which expresses itself in the attempt of the individual to procure for himself what is necessary and beneficial for his welfare and the continuance of his life; fear, which actuates him to avoid anything that may be injurious to him.

As the individual grows, and especially as he ascends in the animal scale, these two motives become enormously elaborated, until finally they spread out into those human characteristics which give a man his personality. Whether one or the other predominates determines in a general way the type of character. The individual in whom desire predominates is himself aggressive, concerned with himself rather than others. When fear predominates, we have characters of uncertainty, indecision, characters which, while they may produce intellectual achievements, can never be men of action. These motives are essentially personal and constitute the primitive ego, and in the very earliest stages of development the ego is the central motive. But with the development of reason it soon becomes apparent that no one individual can accomplish much against the crowd, and in the organization of packs, tribes, clans, of societies and

nations, the individual finds that he often enough serves himself best when he subordinates some of his own personal interests to those of the community. He thereby gains added security, and, if he be a leader, obtains better chances for aggrandizement. The man today therefore can be considered as an individual whose primary motives are those of desire for his own benefit and of fear lest this benefit be interfered with, both of which have been modified by experience, by education and by civilization. He has thereby been forced to a certain degree of altruism, although the fundamental and often subconscious springs of his actions are personal and egotistic. When anything occurs, such as a psychic trauma, which interferes with his mental adjustment, there is a tendency for him to lose the alterations to his personality which have been given him by civilization and education, and to revert more or less to the primitive motives. In mental diseases, this is seen in the egotism and lack of thought for others of the insane. In the traumatic neuroses it is seen by wishes and fears, the true nature of which may be so deeply buried in the subconscious that they are not recognized by the individual, but which nevertheless dominate personality. So that a true traumatic neurosis, in which the question of fraudulent simulation can be excluded, may be regarded as a more or less subconscious expression on the part of the plaintiff of his wishes, or of his fears, his mind having been thrown back to a more primitive state by the accident. With the high money premium put on personal injuries, it is easy to see in what way these wishes may point. But the desire for financial profit, while it is doubtless important, has, in my opinion, been very much overestimated in the original genesis of this affection. It seems to me in a very long experience that a desire for revenge against the person who has injured him is a very much more potent force in determining the changes in personality. I have yet to see a plaintiff who was not extremely bitter against the offending party. He feels that he paid his fare, was going innocently about his business in good health, and suddenly, through no fault of his own, he was thrown into a condition of pain and mental distress which he does not understand. He infers from some personal experience he has had with injuries or from what doctors tell him directly or lead him to infer by their implications that his condition is one from which he will never recover, and for which no money damage can ever compensate him. In view of

the fact that the fault was in no way his, he feels, however, that he must be compensated; and this feeling burrows deeper into his soul than he realizes, and expresses itself not directly in words, which would be useless, but in the form of a disease or disability which will gain for him the sympathy and consideration of those who are to decide the amount of the damages. The symptoms which are to externalize his wishes to the world come on almost simultaneously with the shock, or they may come after a period of meditation, during which period the suggestions of doctors and others determine the symptomatic type. During this period of meditation, in addition to dwelling on his injuries himself, his family and friends keep telling him what an outrage it was, thereby deepening his own desire for vengeance and compensation. Closely allied with desire in these cases, and one which expresses itself even more frequently is fear. Limited as it may be at first to a fear of reexposing himself to the particular variety of accident by which he has been injured such as a railway accident, elevator accident, accident with automobiles, etc., it may soon spread through the mind like a forest fire, until the mental state is that of general timidity. The patient startles easily, fears to be alone, fears that something is going to happen to him. A state of fear is inseparable with depression, and as a result there ensue those states of depression which have so commonly been described as occurring in traumatic neurasthenia. Of the two diseases, traumatic hysteria seems to follow more or less the type of an unconscious expression of wishes, and neurasthenia seems to follow the type of timidity and depression. In the hysteria with objective physical symptoms, such as paralyzes, convulsions, etc., the mental condition has often been remarked as that of indifference, while in the so-called neurasthenias the mental condition has been that of apprehension, irritability, constant inquiry and complaint, which indicates a general mental condition of timidity and depression.

**4, Symptomatic trends:** The study of the traumatic neuroses has always been hindered by the fact that it rarely is possible to get at all the conditions of the case. The physician who makes the examination of the injured person on the part of the defendant is blocked by the attorneys of the other side in his effort to determine those features which, extremely important for complete medical diagnosis, have no bearing at law. The physician for the plaintiff must, in the vast majority of in-

stances, follow out the line of argument of the plaintiff's attorneys or lose his job. As a consequence the traumatic neuroses have rarely been studied from the analytical point of view which has thrown so much light upon neuroses of other origins. If the hypothesis which I have set forth is correct, the explanation of every traumatic neurosis must be found in disturbances of consciousness. The accident affects consciousness more or less violently, and at once begins to loosen restraint in the subconscious regions. It is in my experience extremely rare for the subconscious to gain complete mastery. Even in those symptoms which seem to be exclusively products of the subconscious, there is almost always left the impression that the patient himself has some insight of what is going on beneath the surface, that every one affected with this trouble has more realization of the nature of it than he will admit or than it is possible to demonstrate. In litigated cases this immediately wins for the patient the stigma of "simulant." This, however, in my opinion, is not correct. It is rather that the subconscious has assumed control of mental actions of which the individual may be dimly aware, but which he is unable of himself to obviate. With the subconscious in control, the primitive motives of the individual with the modifications which they have undergone under the particular social conditions which have affected him come into the foreground. These modifications depend upon individual characteristics, race, social position, etc. As far as race is concerned, one sees essentially different symptoms in the dull peasant of Bavaria from those of the flaunting, free American. Social position also makes its differences. The train, in the wreck of which I participated, was called the "Bankers' Special." It was an express train from a suburban town to New York, containing almost exclusively business men. It was the kind of accident best calculated to cause traumatic neurosis of the individual, but of the 150 odd passengers, either by reason of their education or from the fact that they were too much occupied to spare the time to think of revenge or to meditate on injury, not a single one developed a traumatic neurosis, and no claims of any importance were brought against the railway company.

The individual symptoms of traumatic neuroses, namely the hemiplegia, the paraplegia, the blindness, etc., which have been regarded hitherto as the most important, seem to me important only in so far as they give a clue to mental motives. They are

the clinical expression of fear or desire; their particular form is determined partly by the general make-up of the patient and partly by environmental conditions. In the first edition of my book, published in 1896, I called attention to the fact that suggestion by physicians was an extremely important factor in determining the symptoms in the traumatic neuroses. This statement has been more than verified by Babinski's paper, published in 1909, on the "Dismemberment of Traditional Hysteria." Babinski's contentions that all of the so-called hysterical stigmata, the paralyzes, the anesthasias, the convulsions, etc., are the products of suggestion, without individual value in themselves, is being more and more substantiated. They simply express what the individual wishes, or what he fears, and the methods of expression are dependent upon what disease pictures he has seen himself in hospitals or elsewhere, or what symptoms physicians by their clumsy examination had intimated to him he has or may ultimately develop. Thus a so-called hysteria paralysis is psychologically an expression on the part of the individual of his resentment at the injury he has sustained, of a wish that this injury may be demonstrated to others, and the particular personal manifestation of it is the result of what he has seen or what doctors have told him as to what may happen to people who have been in severe railway accidents.

The role of suggestion in determining the symptomatic type of this variety of mental aberration is now firmly established. Some of the symptoms formerly classified as hysterical, have been shown to be due to organic diseases. Those that remain are largely influenced in their form by suggestion, which may be derived from the individual's own past experiences, or what comes to him from without, so that Charcot's teaching that hysteria counterfeits the organic diseases has to be modified. Today we believe that a hysterical mental state furnishes a soil upon which suggestion of almost any nature may flourish.

It is hardly necessary to say that it is impossible to demonstrate the two motives back of a traumatic neurosis in an individual case by direct questioning. An injured person questioned along any such lines as indicated in this paper immediately shows resentment, takes offense, refuses to be examined, and regards the examiner as unsympathetic and brutal. He develops a resistance which in itself is an indication that delicate ground is being reached. To avoid this, there have been invented various



methods of getting at both the conscious and subconscious regions of the mind in a manner by which the patient cannot take offence. One of these is the method of association, and the other is that of analysis of dreams. By both of them the patient is led along until he says things unwittingly which he would not say did he fully realize what he was doing. As a result the examiner can get clues to the mental workings and the underlying motives which he could not obtain by direct questioning.

**5, Outlook:** Statistical inquiries undertaken for the purpose of deciding what proportion of cases of the traumatic neuroses recover have always been extremely baffling. It has rarely been possible to secure accurate information of a sufficiently large number of injured persons one or two years after the accident to make the results adequate. These patients have a great way of moving about, changing their addresses, and some, even when they are located, refuse to furnish information which might be of use. General considerations, therefore, must be relied upon to a certain extent in formulating prognoses. My own experience with cases designated as traumatic hysteria has been that before the legal case is terminated, there is little or no improvement; that after the case, as such, is terminated, there is eventually disappearance of the physical symptoms, such as paralyses, etc., in almost every case. This recovery does not occur immediately, as claim agents maintain; it may be delayed several months or years. In only one litigated case of my personal experience have these symptoms failed to disappear after the legal questions were decided, and in this case it seemed to me that the accident was simply an incident in the pathological evolution in an individual predisposed to hysteria. This factor must always be taken into consideration in prognoses,—whether the symptoms really were created and initiated by the accident, or whether the accident simply precipitated a chain of symptoms which were imminent.

As far as the cases designated traumatic neurasthenia are concerned, it is very much more difficult to determine the completeness of recovery, for the symptoms being subjective, the patient may never arrive at a point where he is willing to admit that he is as well as he was before the accident. But in both classes of cases it is my belief that the vast majority of injured persons, when the legal questions are over, recover sufficiently to resume their personal and social obligations, and to seem to outsiders to be in good health.

## Epigastric Hernia: Its Importance in the Diagnosis of Obscure Abdominal Conditions

By JOHN PHILLIPS, M. B., Assistant Professor of Medicine, Western Reserve University, Cleveland

Epigastric hernia is a condition of great importance, because the symptoms which it produces can simulate many acute and chronic diseases of the organs within the abdominal cavity. This form of hernia was first recognized in 1285 by Arnould de Villeneuve and was also described by Garangeat in 1743. In 1744 Günz described this condition under the title "*De Ventriculi Herniis*," thinking that the stomach was involved because of the marked gastric symptoms. Ferrier performed the first operation for epigastric hernia in 1885.

**Frequency:** Denk reports 165 cases of hernia of the anterior abdominal wall seen in von Eiselberg's clinic between the years 1901 and 1909, and of these 135 were operated. He classifies these as follows:

Kind of Hernia—	No.	Male	Female
Umbilical .....	89	6	83
Epigastric and paraumbilical.....	39	33	6
Diastasis of recti.....	5	3	2
Herniae ventrales laterales.....	2	....	2

Of the above cases one epigastric and eighteen cases of umbilical hernia were incarcerated. Cumston says that from 1 to 5 per cent of all hernias are epigastric. This agrees pretty closely with the observations of other authors; thus Miles states that 1.37 per cent of all cases of hernia are of the epigastric variety. Quain found seven cases in 142 of all varieties, approximately 5 per cent, while Kocher in his statistics places the frequency at 4.6 per cent. Sebba in a review of the literature found 223 cases of epigastric among 28,348 hernias, or 0.8 per cent. This agrees with the findings in a large number of cases collected from various sources by Müller. Lindenstein says that this variety of hernia is found in 1 per cent of all cases applying for treatment in the ordinary clinic. Ewald saw twelve cases at the polyclinic, but only one in private practice during one year. In the medical department of the Dispensary of Western Reserve University and the Lakeside Hospital we have seen forty-two cases of epigastric hernia in a total of 7,500 patients admitted during the past two and one-half years. This gives a frequency of 0.56 per cent.

**Sex and Age:** Lindenstein states that the proportion of males to females afflicted is five to one. This corresponds exactly to our series of cases in which there were thirty-five males and seven females. The majority of cases occur during the active period of life, between 30 and 40.

**Etiology:** Müller believes that the majority of cases of epigastric hernia are due to trauma, prolonged strain or contusions with pointed instruments, although in some cases a congenital weakness of the abdominal cavity may be present. The fact that the greater number of cases is observed during the active period of life and especially in laboring men, and the preponderance of cases in the male sex, would speak in favor of trauma as the chief cause, the fascia in this way being ruptured. However, even in these cases there may have been a congenital defect in the abdominal wall, and the hernia was produced by the excessive strain of heavy lifting causing the preperitoneal fat to protrude. Schutz has reported a very interesting case of epigastric hernia which proved to be a preperitoneal lipoma projecting through a foramen in the ensiform cartilage and another through an opening in the linea alba below. After dissection of the first, a peritoneal sac could be drawn up into the opening; the lower tumor was quite adherent. The embryological explanation is that the sternum, which develops bilaterally, had failed to fuse in its lower part, leaving a foramen through which the preperitoneal fat protruded. If one postulates the same faulty fusion of the linea alba, it is easy to explain epigastric hernia on the congenital or embryological basis. This would, however, fail to explain the large number of cases which are situated lateral to the median line. These are best explained by rents or tears in the fascia, and it is probable that most epigastric hernias start as a fatty tumor through these rents. Among other etiological factors may be mentioned other conditions which tend to weaken the abdominal wall, such as obesity, weak abdominal parietes after emaciation or prolonged illness, atrophy of the recti muscles and excessive strain from coughing, vomiting or pregnancy. Stuhmer has called attention to the fact that some of these hernias can be explained by the occurrence of a dilatation of the canals normally transmitting vessels and nerves and gives a diagram to illustrate the fact that hernia of the abdominal wall is most common at the points where the vessels pass through the fascia and muscles. According to the etiology, various classifications have

been attempted. Thus Denk states that there are four classes: (a), Congenital weakness of fascia; (b), ingrowths of preperitoneal fat into fascial defects; (c), trauma; (d), chronic strain, such as cough, vomiting, sneezing, pregnancy. Lathrop has given the following classifications: (a), Embryological defect with failure of fusion of the abdominal parietes; (b), weak abdominal muscles after emaciation or atrophy of the recti muscles; (c), trauma, sudden, severe, and prolonged; (d), influence of preperitoneal fat and terminal vessels and nerves.

**Pathology:** From the standpoint of pathology, Eichel divides epigastric hernias into two classes: (a), Those uncovered with peritoneum and spreading under the skin, the peritoneum having probably ruptured when the hernia was first formed. (b), Those that are covered by a peritoneal sac. He makes the statement that the wall of the stomach is never to be found in the hernia. Kelling says that all so-called epigastric hernias are either genuine hernias with a peritoneal sac or no hernia at all, being simply preperitoneal masses of fat. In 38 cases described by Thomas he found fat alone in 6 cases, peritoneum in 2, omentum in 26, and intestine in 4. Phöger found in 86 cases, fat alone in 39, omentum in 31, intestine in 5, and empty hernial sac in 11. Denk in 39 cases of epigastric hernia found an empty hernial sac in 11, free omentum in 5, adherent omentum in 7, omentum with transverse colon, stomach wall and appendices epiploicae in 1, preperitoneal lipoma and hernial sac in 9, and preperitoneal lipoma without hernial sac in 6. Lathrop has reported observations made on 17 cases seen in the dissecting room. In these he found in 15, fatty tumors connected with the preperitoneal fat; in 2 there were several separate subcutaneous tumors. In the latter two cases the under surface of the peritoneum was smooth, but on picking up the tumor the peritoneum could be drawn through the fascial ring, because of the quite firm fibrous bands between the two. In his cases the fat usually protruded through clefts traversed by vessels. In only a few cases were there actual pockets of peritoneum. These two conditions may be stages in the same process as both may be seen in the same patients. Hedlund has reported one case in which part of the stomach wall was contained in the epigastric hernia. Gottschlich has described one case in a woman 46 years of age, in which the stomach was adherent at one point to the hernial sac. In such a case as this the pain would be increased with

the patient in the recumbent position. The intestine may form part of the hernial contents as in two cases seen by Klaussner, one a boy 11 years of age, the other a child 6 weeks old. In neither case were any symptoms present. Strangulation is quite uncommon; Volcker saw one case among nineteen afflicted with epigastric hernia. Sebba reports one case of strangulation with beginning abscess of the abdominal wall. Sometimes the hernia may become inflamed and strangulated following injury. Such a case I saw three years ago in a man 45 years of age, who, in cranking his automobile, slipped so that the crank struck him in the epigastrium. A small hernia about the size of a hickory-nut became inflamed as a result and an operation was necessary to relieve the strangulation. As a rule these hernias are very small and are situated slightly to one side of the median line; they usually do not attain a size larger than a lima bean. At times, however, they may attain a very large size, as in a patient recently seen. In this case an Assyrian laborer, aged 70, as long as he could remember, had a hernia which projected about three inches above the level of the surface of the abdomen and the diameter at the base was four and a half inches. It had never caused him any pain or inconvenience.

**Symptoms:** A large proportion of patients have no symptoms, and the hernia is discovered in the course of a routine physical examination. The most constant symptom is pain in the epigastrium, which may be referred to the bladder, testicles, rectum or towards the chest and is increased by bending backward, kneeling or on jarring, such as going up or down steps. In some cases the pain is more marked when the stomach is full and is increased by lying on the back. This is true if the stomach wall is adherent. In those cases where the stomach is not adherent the pain would be relieved by lying on the back. Sometimes paroxysmal pains resembling gall-stone colic has been noted. If this is accompanied by emesis and collapse it would suggest incarceration. Aaron has mentioned the fact that the symptoms may come on in paroxysms after eating, especially pain encircling the body and radiating down the legs. Blumer has called attention to the fact that the pain may radiate to the shoulders and down the arms. The other symptoms complained of are referable chiefly to functional disturbances of the stomach and intestines. Thus the patient may have heartburn, eructations of gas, vomiting, flatulency, palpitation of the heart, constipation, head-

ache and dizziness. Milerliez, Berg, Kelling and others have called attention to the fact that gastric ulcer may develop from the anemia of the stomach wall caused by sympathetic irritation. Wiesenger has called attention to the fact that symptoms referable to peritoneal irritation—meteorism, vomiting, constipation and, at times, bloody mucous diarrhea—may be seen extending over a period of eight to ten days and then subside. These may be due to a partial strangulation of a small piece of gut. Occasionally an abscess of the abdominal wall may develop, the strangulated gut being adherent. Sebba has also mentioned diarrhea as a not uncommon symptom. Cobb has reported one case with chronic diarrhea, the latter condition being cured by operation. The dictum of Rector over a century ago should be emphasized: "Do not forget that small hidden herniae may cause all varieties of stomach symptoms." Gastric analysis gives no constant findings; the majority of cases show hyperacidity, a few subacidity or normal findings.

**Diagnosis:** On inspection, with the patient lying down and in a good light, the small epigastric hernias can usually be made out with comparative ease. They show more plainly if the patient is asked to strain or to raise his head from the pillow or by coughing. Frequently they can be recognized better if the patient is standing up. The very small hernias can be detected by careful palpation. They are often quite tender and can be felt better in some cases if the patient is asked to cough or strain. Litten has described a sign which is useful in differentiating hernia proper from fatty tumor. If the hand is placed over the mass while the patient coughs, the observer gets the impression as if water were being squirted through against the hand in the genuine hernia but not in tumor. This observation I have been able to confirm. The most common site for epigastric hernia is at a level one and a half or two inches above the umbilicus and about one inch on either side of the median line.

As a rule there is no difficulty in the diagnosis of epigastric hernia if a careful physical examination of the abdomen is made. The conditions with which it is likely to be confused are nervous dyspepsia, gastric and duodenal ulcer, cholelithiasis, cholecystitis, nephrolithiasis, appendicitis; rarely with gastric carcinoma, angina pectoris, gastric crises of tabes, or colitis. Occasionally gastric ulcer and epigastric hernia are found in the same patient. Such cases have been reported by Mezger, Urquand, Strauss, and

these authors thought that the epigastric hernia was a factor in the production of the ulcer. Pain referable to meals speaks for ulcer; pain referable to exertion speaks for hernia. Relief when lying on the left side is a point in favor of ulcer; relief when lying on the back is in favor of hernia. To sum up, one might say that the majority of mistakes are made because epigastric hernia has not been thought of as a possible cause of gastric symptoms. In one case reported by Gottschlich, the diagnosis of nervous dyspepsia, ulcer of the stomach and duodenum, and pancreatic disease had been made. In one case seen by the writer, the patient, because of pain in the abdomen, had been operated by a surgeon in another city for appendicitis a year ago, with no relief. Four months later he was operated again and the gall bladder drained with no relief. He came to the clinic two months later and two inches to the left of his gall bladder operation wound, there was found a hernia the size of a walnut, which was extremely tender. Operation for the hernia gave him complete relief from symptoms.

**Prognosis:** The majority of writers consider operation safe and the results satisfactory. Witzel had 54 cases with 5 recurrences. Lindenstein has reported 13 cases, all of which healed without complications and years later there were only two recurrences and these did not give any symptoms. Capelle reports less favorably; in his series all were in satisfactory condition immediately after the operation but of 35 cases examined years later, in only 9 was the result ideal, 19 had symptoms much the same as before operation, although in 12 of these the symptoms probably had not been due to the hernia, and in 6 there were recurrences. In two cases there was an associated gastric ulcer.

**Therapy:** Binders, trusses and other mechanical means have been tried for the relief of this condition but without success. Operation is the only effective treatment. The methods advised are determined by the individual case. They consist either in simple suture of the defect or in plastic repair of the aponeurosis of the muscle by overlapping and suturing.

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**The Hypochlorite Treatment of Water-Supplies.**—We have several times referred to the increasing use of hypochlorite as a disinfecting agent in connection with polluted water-supplies. The evidence that continues to come to hand concerning the success of this procedure is still of a highly favorable character. Jennings, (Jennings: *Eng. News*, Dec. 12, 1912) for example, has recently obtained data from a number of cities in the United States and Canada which have been employing the hypochlorite treatment for considerable periods. Terre Haute, Cedar Rapids (where the results are said to have been "spectacular,") Montreal, Grant's Pass, Ore., Baudette, Minn., Nashville, Cincinnati and Danville, Ill., are all places where a marked reduction in the number of bacteria, including *Bacillus coli*, has been observed in the city water after inauguration of hypochlorite treatment. North Yakima, Wash., Council Bluffs, Ia., Cleveland, Erie, Pa., Toronto, Baltimore, Evanston, Ill., Minneapolis, Omaha, Jersey City and Kansas City, Mo., are among the cities where a noteworthy reduction in typhoid fever has followed the use of hypochlorite. In Cleveland, for instance, the reported deaths from typhoid fever in the four years 1907-1911 (October to June) numbered, respectively, forty-six, fifty-two, sixty-six and sixty-five. In September, 1911, the hypochlorite treatment was begun and for the eight months, October 1, 1911, to June 1, 1912, only twenty-eight deaths were reported. In Jersey City the average death-rate from typhoid for 1905, 1906 and 1907 was 18.5, while for the three years following the use of hypochlorite, 1909-1911, it was 9.6. In Minneapolis there were thirty-nine deaths in the ten months before hypochlorite and two deaths in the ten months immediately following its use. Such facts as these establish the high value that may attach to hypochlorite treatment of a water under proper conditions. While no experienced sanitarian can regard the use of this chemical as a panacea, there is no doubt that it has added greatly to our resources for dealing with a polluted water-supply, particularly under emergency conditions and pending the installation of a permanent system of purification. It is unfortunate that many of the published statements regarding the efficacy of the treatment do not state the amount of hypochlorite used and in the case of typhoid statistics do not cover a sufficiently long period to afford an adequate basis for comparison; but these deficiencies are likely to be remedied in time. On the information now at hand, as presented by Jennings and others, there seems reason for much of the enthusiasm with which the hypochlorite treatment is now being applied. (*Jour. A. M. A.*)



## Sloughing of the Nasal Septum After Submucous Resection

By D. A. PRENDERGAST, M. D., Assistant Surgeon in the Nose, Ear and Throat Department of the Dispensary of the Lakeside Hospital and Western Reserve University; Consulting Oculist to St. Ann's Maternity Hospital, Cleveland.

Healing after submucous resection of the nasal septum is usually prompt and satisfactory. Delays in the repair process are due as a rule to perforation of the septum or tearing of the mucous membrane resulting from operative manipulation. Sloughing of the nasal septum after submucous resection is not a common sequela. This may be due either to some local condition in the nose or to systemic disease. Of the former, abscess of the septum is no doubt the most common; the infection often starting in a small hematoma that has been overlooked or in the decomposition of bone particles that have not been removed at the time of operation. Less commonly sloughing and subsequent perforation of the nasal septum may result from pressure from unusually large turbinate bones when the inflammatory reaction following the operation is prolonged and severe.

Of the systemic diseases may be mentioned as the most important tuberculosis and syphilis. Postoperative sloughing due to tuberculosis is, however, very rare; but that due to syphilis is more common and I dare say more common than the published records indicate. Syphilis of long standing, doubtless the tertiary stage, is usually the cause. The nasal septum, especially if the normal resistance is lowered by surgical interference, seems to be a very favorite seat for the action of the syphilis virus. The rapidity with which all the tissues making up the septum of the nose succumb to the sloughing process is remarkable.

The case I wish to report is one of sloughing of the nasal septum after a submucous resection for the correction of a deflected septum. The loss of tissue was first noted two weeks after the operation. A Wassermann reaction, by Doctors Cumer and Dexter, cleared up the diagnosis. Only by very vigorous treatment was the process brought to a standstill after the disease had caused a sloughing of at least two-thirds of the septum.

This case is possibly interesting not because it presents anything new but because it brings up an every day problem of every nasal surgeon; that is, the untoward results of operating

upon the nasal septum in the presence of a syphilitic infection and what methods can be used to avoid the same.

This case is a good example of the class of cases in which it is most difficult for the nasal surgeon to determine whether or not there is any systemic disease that might cause an undesirable result after operation upon the nasal septum. It is a case of latent syphilis in which the postoperative behavior of the nose and the positive Wassermann reaction were the first intimations to the patient herself that she was suffering from syphilis.

Mrs. S., age 31, consulted me because of nasal obstruction and headaches. The family history was negative.

The personal history was also negative. She claims that her health, with the exception of severe headaches, has been fairly good. The patient is a well nourished, cheerful woman apparently in robust health. The examination of the nose showed a deviation of the septum situated at the junction of the anterior and middle third. A submucous resection of the nasal septum was done on April 22, 1912. There was nothing unusual about the operation. There was no perforation or tearing of the mucous membrane. The healing of the parts went on normally until two weeks after the operation a small necrotic area situated at about the center of the normal position of the quadrilateral cartilage, the cartilage itself having been almost entirely excised at the time of the operation. She was given an alkaline spray and told to report in one week. She, however, left the city and returned in three weeks. At this time a large perforation was noted involving almost the entire cartilagenous portion of the septum and part of the vomer and perpendicular plate of the ethmoid. Owing to the typical appearance the patient was told frankly what the clinical picture indicated. She stoutly maintained that there was nothing in her past history or in her physical condition that could be accounted for by the infection but she consented to a Wassermann test. Doctors Cummer and Dexter reported a strongly positive reaction. The sloughing process went on rapidly. After one month of vigorous treatment it was brought to a standstill. The perforation at the present time involves fully two-thirds of the septum including part of the perpendicular plate of the ethmoid and the vomer. The crust formation has stopped. There are no subjective symptoms complained of and there is no external deformity.

## Factors Concerned in the Spread of Scarlet Fever

By S. C. LIND, M. D., School Medical Inspector, Cleveland

Although scarlet fever has been recognized as a disease entity for centuries and was accurately described by Sydenham, its etiology is unknown. Thus handicapped the medical profession has made but little progress in its control. Epidemics occur frequently and sporadic cases are ever present. Just why this is so is not known. Patients isolated for as long a period as twelve weeks have infected others, while cases quarantined for a much shorter period have not proved dangerous. Again, the disease varies from a type resulting in death within forty-eight hours, to one so mild as to be unrecognized. In short, scarlet fever is a most protean disease, one dreaded both on account of its immediate mortality and on account of its serious complications. Perhaps 50 per cent of all persons have had scarlet fever, so prevalent and so great is its contagion.

The etiology is unknown. Most believe it dependent upon a specific microorganism. Analogy points to this. Various organisms have been described. The streptococcus, on account of its constant presence in the throats and its frequent occurrence in the organs and blood of scarlet fever patients, has received a great deal of work. It now occupies the role of a secondary invader. *Cyclasterion scarlatinalis*, a protozoan, malaria-like organism described by Mallory, has received no general acceptance, nor can a bacillus, isolated from the cervical lymph glands and easy of culture on ordinary media, reported by Vipoid of Montreal, be accepted as the much sought organism. Kolmer, of Philadelphia, examined lymph nodes from twenty-six scarlet fever patients and was unable to find a bacillus resembling the one described by Vipoid. The specific cause remains to be found. However, a distinct advance was made when Contacuzene, and later Bernhardt, produced typical scarlet fever in monkeys.

Contacuzene injected one group of monkeys with blood from an early case, another group with pericardical exudate, and a third with an emulsion of bronchial lymph glands. These monkeys became ill, developed temperature, angina, and a rash, which was followed by desquamation. Bernhardt prepared an emulsion from the tongue coating of early cases. This he injected into monkeys. In some instances he merely rubbed

the emulsion over the tonsils. Typical scarlet fever developed. Glands were excised from these monkeys, an emulsion prepared and injected into other monkeys. These animals developed scarlet fever. After three such passages the material was free from streptococci, yet was capable of producing scarlet fever. Streptococci alone did not produce the disease in monkeys. Thus we conclude that scarlet fever is carried by an unknown virus and that it is not due to the streptococcus.

The consideration of factors bearing on the spread of scarlatina brings up several interesting points. Many observers believe that it is a disease of direct contact. They discredit the importance previously given to fomites. Kerley says that scarlet fever is rarely carried by a second person or object. He considers the early stage to be that of greatest contagion, and that there is not much danger from desquamation *per se*. This observer regards wrongly diagnosed and unsuspected cases as being the chief factors in the spread of scarlet fever. I may relate a few cases that have come under my own observation.

A. B., two years old, was sent to the contagious department of the City Hospital with a diagnosis of scarlet fever. The patient was quite ill, showing a rash somewhat resembling the erythema of scarlet fever, and a throat with a very definite membrane. Five visitants all agreed that the case was not scarlatina. From the throat diphtheria bacilli were cultured. Before reaching a diagnosis the child was kept in a room on the scarlet fever ward. She was cared for by nurses in attendance on definite scarlet fever cases. This child did not desquamate. Neither did she contract scarlet fever. The mother said she had never had the disease.

M. M., nine months old, was sent in as a case of scarlet fever. Owing to an uncertainty of diagnosis she was put into a private room. No albumin was found in the urine, nor did desquamation take place. The child was not sick, although exposed as was the case first described. She did not contract scarlet fever, and there was no evidence that she had ever had the disease. Furthermore, I do not know of any child having contracted scarlet fever while on the mixed ward.

H. D., colored, age four years, was sent in with a diagnosis of diphtheria. An atypical throat, a strawberry tongue, and a temperature of 105° strongly suggested scarlet fever, so the patient was sent to the mixed ward for observation. Cultures were negative and after serious illness the patient recovered. Desquamation followed. In this ward there were nonimmune children. They did not contract scarlet fever, although nurses attending H. D. also looked after these patients. The technique against spreading the disease simply consisted in a change of gowns and a rather superficial washing of the hands. Furthermore, none of the internes ever carried scarlet fever to other patients under their charge.

That scarlet fever may be transmitted through the air is no longer given serious consideration. We read of instances of children living next to a house in which there has been scarlet fever, developing the disease, following the airing of bed clothing

used by the patient. The virus is supposed to have been carried to the nonimmune through the air. We may well question this conclusion.

In this connection it may be of passing interest to relate an unsuspected condition existing in our contagious hospital, namely that air from scarlet fever ward "J" passed directly to the diphtheria division "L." This was discovered quite by accident. The recent scarlatina epidemic having abated, it was decided to use ward "J", directly under that occupied by diphtheria patients, for mixed cases. The scarlet fever cases were transferred to other wards. Ward "J" was scrubbed, the windows and doors were stopped up with cotton and formaldehyde fumigation begun. In a few minutes the fumes had passed to the ward above, much to the distress of the patients. There was found to be a fairly direct communication, which had existed since the opening of the hospital some months before. During this time no scarlet fever had appeared among the diphtheria cases, and many of these were nonimmune persons.

Some observers claim that the scales are dangerous, while many others regard them lightly. Although unable to prove this point the latter would blame the buccal and nasal secretions. This is the position held by Curtiss, of Massachusetts. A. Baguisky reports forty-five patients discharged as cured and not dangerous. Although desquamation was over each of these patients was responsible for a return case. Those thus exposed contracted scarlet fever within five to twenty-five days, the average being seven days. If we accept this report, and evidence is good that these forty-five patients were responsible for the return cases, we cannot regard the scales as the cause, desquamation having been completed.

Just when the danger period is over is undetermined. It is estimated that 2 to 4 per cent of patients discharged from scarlet fever hospitals carry the disease to others. I know of instances where cases were isolated for only four weeks and did not infect others, while patients isolated for a much longer period were seemingly responsible for return cases. I recall an instance bearing on this. A nurse on the scarlet fever ward developed a sore throat, was nauseated and had a slight temperature. No rash was noted and a diagnosis of tonsillitis was given. Feeling well in a few days she went for a short visit with a family in which there were two small children, who had never had scarlet

fever. The nurse was greatly surprised to find a certain scaliness of her skin and a cracking of the skin just under the finger nails. Her throat was not sore and there was no nasal secretion. She terminated her visit at once. Neither of the children contracted scarlatina. Perhaps we must attribute this outcome to good fortune. However, we must admit that it is unusual for small children to escape when exposed to an early case.

Scarlet fever may be spread through milk. Hurden, in 1885, described an epidemic dependent on milk coming from cows suffering with an infectious eruption of the udders. Harrington says there is undoubted evidence that the disease has many times spread from farms where children were sick with it.

Books are generally held to be carriers of scarlet fever. In a recent issue of the *Journal of the American Medical Association*, Nesbit gives a report of his investigation of this matter. After careful study he concludes that books are rarely if ever responsible for the dissemination of scarlatina. Before accepting this conclusion we must have more conclusive evidence, since the data are insufficient.

After this rather general and brief consideration of aerial transmission and of the spread through desquamation and milk, we come to the source of greatest danger, namely the atypical and undiagnosed case. That scarlet fever may manifest itself in so mild a way as to cause practically no distress to the individual has been known for a long time. The physician diagnoses pharyngitis and only finds his mistake when typical cases appear among those exposed to such a patient. There may be no temperature and the rash may be so slight as to be unnoticed, if indeed there ever was a rash. The throat may be infected, there may or may not be vomiting. At times even nausea is absent. In 1829-30 W. H. Cook reported an outbreak of scarlet fever in which there were a number of cases without eruption. He recognized the fact that mild types might give rise to a most malignant variety. Taupin, in 1839, reported five cases of scarlet fever occurring in the *Hospital des Enfants Malades*; two of these never had an eruption. The literature is filled with accounts of such cases, and it is needless to go into them at length. An illustration of atypical scarlatina is the following case.

M. S., fireman, aged 34, a man of unusual vigor and physique, contracted a sore throat. He did not vomit nor was he conscious of a rise in temperature. He ached a little and was absent from duty for a day or two. No desquamation was noted. However, some five or six days

later his wife and two children took sick with severe scarlet fever. The wife died, and the children were very ill. Both desquamated and later developed several lesions. In this instance it is conclusively shown that the susceptible individual contracted scarlet fever from a case which ordinarily would be regarded as pharyngitis and that the true diagnosis depended on the development of typical attacks in those exposed. Incidentally here is illustrated the well recognized fact that scarlet fever is apt to manifest itself with a varying degree of severity in different members of the same family.

These atypical cases are the ones largely responsible for the dissemination of scarlatina. At least this is the general opinion based on our present knowledge. We can only trust that some means of diagnosing these cases, some thing by which we can recognize scarlet fever at its incipency will be found. At present we are well nigh helpless.

Propylaxis must consist in a strict isolation of scarlet fever patients. More attention must be given to the nasal and buccal secretions. Contagious hospitals are of the greatest necessity. Milk must be given careful consideration. In lieu of definite understanding we must be overcareful. Rather let our error be on the side of too great caution. Vaccines prepared from a number of strains of streptococci have been used as a propylactic against scarlet fever. Their value is questionable and at best they are practical only in special instances. E. Benjamin and Wet-zinger recommend immunizing doses of diphtheria antitoxin as preventing the development in persons so treated. Any means by which scarlet fever may be prevented must be given consideration.

To summarize: (1), Scarlet fever is due to an unknown virus transferable to monkeys and from monkey to monkey. (2), The virus is found in the throat and nose. (3), Desquamation *per se* is seldom the cause of the spreading infection. (4), Proof is lacking that scarlet fever may be carried through the air. (5), The unrecognized cases are the most potent in its spread. (6), Prophylaxis is difficult and strict isolation is the best means of checking an epidemic.

11000 Superior Avenue, N. E.

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**Diphtheria and Antitoxin.**—Antitoxin is to diphtheria what sunshine is to snow.—A syringe of antitoxin is better than volumes of advice.—The physician who delays giving antitoxin belongs with the man who waited till the house burned down to put out the fire.—A sore throat in diphtheria season is as suspicious as a strange negro in a henhouse.—Great epidemics from little sore throats grow.—Take no more chances with diphtheria than with a coiled rattler—(*Va. Health Bulletin—Almanac*).

## Suturing the Nasal Septum after Submucous Resection Instead of Packing

By W. J. ABBOTT, M. B., Cleveland

One of the questions confronting any operator is—In what condition can the site of operation be left to make recovery as simple and comfortable as possible? This seems to apply in nasal work particularly to the treatment of the septum after a submucous resection. When packing is used, the patient has a restless and uncomfortable time until it is removed, and if packed for twenty-four hours, a restless night is passed. If anything can be done to prevent this discomfort and not interfere with results it would be desirable.

The problem is to hold the two layers of membrane in contact to prevent any considerable hemorrhage either between them—to form a hematoma—or from them. The results of a submucous operation depend on the operation done and generally not to any great extent on the after-treatment, as the membranes will contract and ultimately take the position of the shortest distance between the supporting ring of septum that is left intact. Some operators do not feel it necessary to hold the membranes in contact at all, as they say that they will stay if properly placed and the patient be kept quiet. Others pack more or less tightly with gauze or use splints of various kinds. The first method generally means a hospital operation with rest there for a few days or at least means more care and quiet than many of our patients feel prepared to give. The latter methods involve the partial filling of both nostrils with packings of gauze, plugs or splints. These hold the membranes secure, if properly placed, and prevent any marked hemorrhage, although the patient may go home, but they also irritate and cause an increase in the nasal secretions as well as damn back these or any others coming from a chronic sinus infection. This causes discomfort and may lead to serious conditions. I have seen cases where a badly deviated septum was left unoperated as no means of packing the nose after operation was considered safe.

The method of suturing is simply a through and through suture to hold the two layers in contact. Any method of applying the sutures that appeals to the operator ought to be satisfactory. Lothrop, in the *Boston Medical and Surgical Journal*



(*March 28, 1912*), outlines two methods, viz., a simple through and through suture, rethreading the needle for each stitch; and a two thread method in which a loop is passed through the layers and held by a second thread. This can be repeated as often as is desired. However, I understand that he uses neither of these now but rather a combination of them. His first stitch is passed through well back. The shorter end of the suture is pulled into the other nostril, then the needle slid along on the longer end and a loop passed through near the anterior part of the operation site. The end on the other side is passed through the loop to lock it. The two ends are tied as they pass out of the nostrils. This can be repeated as needed; usually from three to five are used.

I have found that a continuous suture allows me to get through with the operation more rapidly and with better results than any of the above. This zigzags back and forth until all points that may be considered advisable to hold together are so caught. Plain catgut, No. 0, or chromicized catgut, No. 00, is used. The instruments are Mosher's speculum with one tine removed, a Yankauer turbinate needle and a hook. The ease with which this operation can be done has surprised me, and the advantages are so great while the disadvantages are so slight that packings seem to me to be decidedly uncomfortable and dangerous.

The advantages of suturing seem to be:

- 1, The comparative comfort of nasal breathing with the accompanying lack of discomfort from retention of secretions. This allows cases of sinus empyema to be operated as easily as other cases.

- 2, The ease with which a patient can be operated and allowed to go to his home, although it be out of the city, little or no after-treatment being required.

- 3, The closing of the incision and any accidental breaks in the membranes can be accomplished at the same time.

- 4, The hemorrhage after this method has seemed to me to be generally less than after packing methods. This may be accounted for by the lack of discomfort and restlessness due to pressure and to the forced mouth breathing.

- 5, The dangers of retention of the secretions are avoided.

The only disadvantage of suturing I have seen is the slight increase in time. The question of perforation may be brought

up, but I have seen none that have caused any trouble, while if the two membranes are torn in places opposite each other they can generally be easily slid to avoid a perforation.

If catgut is used it drops out with the secretion, while if silk is used it must be removed in two days.

210 Lennox Building.

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**A New Force Against Fraudulent Advertising.**—In the fight for clean advertising a new force has come into play. Enlightened public opinion has compelled the users of large advertising space to recognize the fact that an advertiser is known by the company he keeps. The Associated Advertising Clubs of America, an organization with more than ten thousand individual advertisers, has created a National Vigilance Committee whose duty it is "to wage war on dishonest advertising to the end of increasing public confidence in honest advertising." This is a most effective and promising movement. With the purchasers of large advertising space refusing to give contracts to those publications which carry fraudulent advertising—medical or otherwise—an enormous step in advance will have been taken. This activity on the part of large advertisers has already begun to bear fruit, and there is every reason to feel optimistic for the outcome. This new force will simplify to a wonderful degree the problem of fraud in advertising.—(*J. A. M. A.*)

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**Functions of the Spleen.**—To Prof. Leon Asher and his pupils in Berne is due a series of interesting observations which promise to clear up some of the vexatious uncertainty concerning splenic function. They have demonstrated that the spleen is, indeed, an organ for the metabolism of iron. This important conclusion is based on the observed fact that under the most diverse conditions spleenless animals regularly excrete more iron than their normal companions; this finding has been confirmed by Bayer on splenectomized men. In the light of this fact it is possible to understand some of the older supposed discrepancies in the literature on the relation of the spleen to hematopoiesis. It is now quite conceivable that, if a spleenless individual is receiving a minimum of iron in the dietary, the continued loss of the element under the induced conditions of exaggerated iron elimination may lead to a real deficit when an extensive production of the ferruginous red blood-corpuscles becomes necessary, and the supply of iron for the manufacture of hemoglobin may actually here become scanty. When iron is ingested in abundance, however, the storage capacity of the liver and other organs may readily suffice for any regenerative emergency even under the unfavorable conditions of exaggerated loss which pertain in splenectomy.

This is, indeed, what has been found to occur. If healthy young dogs are maintained for even considerable periods on an iron-free diet, they do not suffer any anemia unless the spleen has been removed, whereupon a marked diminution in the content of hemoglobin and the number of red blood-corpuscles promptly ensues. This deficiency is at once made to disappear if meat—a food abounding in iron—is furnished in the diet. The reparative response to hemorrhages follows along similar lines after splenectomy, the blood-picture being determined essentially by the abundance or lack of iron in the food. As long as food which contains iron is given freely, the removal of the spleen is without apparent consequence even for the growth and development of the young. The conflicting evidence in regard to the blood-forming functions of the spleen may thus find their explanation in dietary factors. In any event the removal of the spleen, which is now a familiar surgical procedure, calls for an abundance of iron in the food as an obvious consequence of Asher's important investigations.—(*J. A. M. A.*)

## Station of the Presenting Part in Labor

By A. J. SKEEL, M. D., Cleveland

By the term presentation, in obstetrics, we refer to that portion of the fetal ovoid which is engaging or attempting to engage at the pelvic brim. Some anatomic part of the fetus presents or offers itself at the pelvic brim and is consequently the presenting part or presentation. By the term position we may refer to the "position *in utero*," longitudinal, transverse, oblique, etc., but commonly we designate by it the relation which the presenting part bears to the mother's pelvis.

Following Mueller's suggestion, C. S. Bacon, in 1903, presented to the Chicago Gynecological Society a paper in which he proposed the addition to our nomenclature of the word "station." We refer to the level at which the presenting part is found in the parturient canal as its "station." In order to define accurately the station of, let us say, the head we might locate the portion which has penetrated most deeply into the parturient canal, to wit: the occiput in vertex presentation, the chin in face presentation, etc. Frequently in vertex cases the station of the biparietal diameter, the greatest transverse cephalic diameter, is used as a convenient method of describing the depth to which the head has penetrated.

It is possible, however, by rotation or lateral inclination for any transverse diameter of the head to pass through any pelvic plane, provided the total circumference of the particular portion of the head concerned is not too great. It is not possible, however, for any cephalic circumference to pass through a given pelvic circumference unless the cephalic measurement is equal to or less than that of the pelvic plane concerned. The head then will be detained at any pelvic plane unless the greatest cephalic circumference involved in the mechanism of that particular presentation can pass through. This may be designated as the greatest participating circumference of the head.

It seems accurate, therefore, to describe the station of the head according to the location of its greatest participating circumference. In vertex cases this would of course be the suboccipitobregmatic, etc. Accordingly, when the suboccipitobregmatic plane coincides with the plane of the inlet, the head is stationed in the inlet. In face presentation the submentooccipital

circumference is the largest participating circumference; therefore, when the submentooccipital plane coincides with the plane of the pelvic inlet in face presentation the head is stationed in the inlet. In studying the station of the head, however, we must remember that the lowest point of the head in a well flexed vertex case is the occiput, while in a completely extended face presentation the lowest portion is the chin. Now the distance from the chin to the submentooccipital plane is a full inch greater than

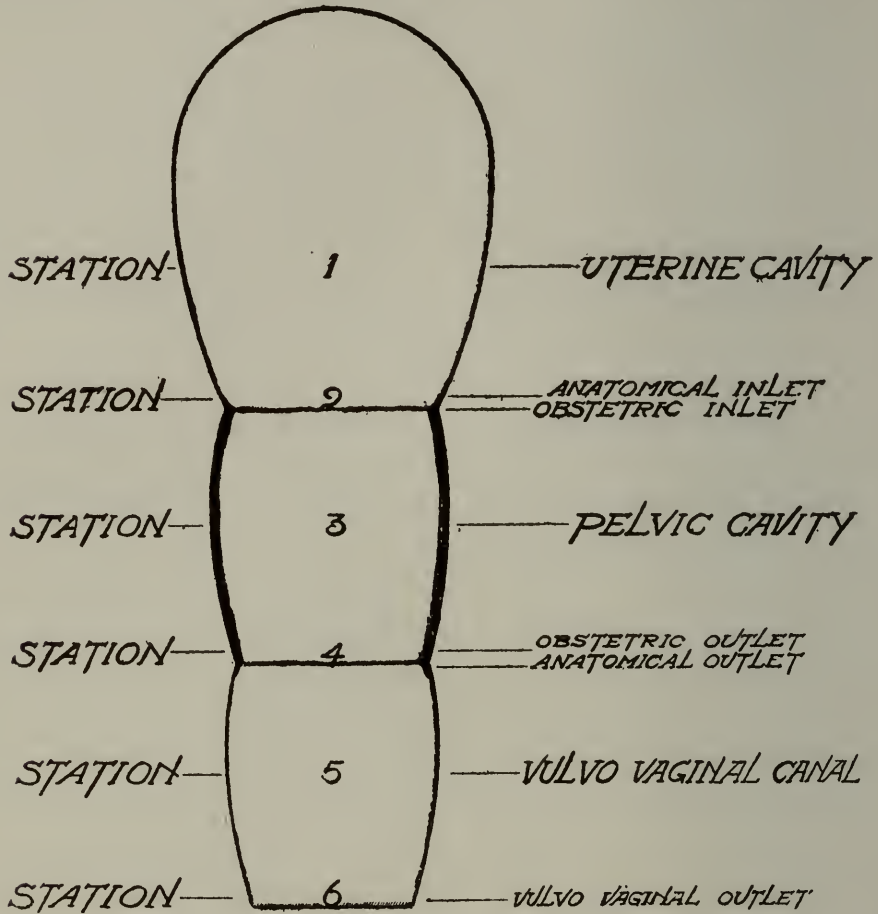


DIAGRAM OF PARTURIENT CANAL  
FOR STUDY OF STATION

Diagram I

the distance from the occiput to the suboccipitobregmatic plane, even after moulding. It follows that the chin must be much lower in the pelvis than the vertex before the largest circumference of the head has passed the inlet.

Considered as a passage-way for delivery the parturient tract consists of a curved canal constricted at three levels. If we were to straighten out this canal we might diagram it somewhat in this fashion. (Diagram I.)

This of course entirely disregards the difference in length of the anterior, lateral and posterior walls and presents the question purely for the purpose of study of station. Viewed thus, the canal consists of three dilated or dilatable portions and three narrowed or constricted parts. The expanded portions are the uterine cavity, pelvic cavity, and vulvovaginal canal, while the constricted portions are the obstetric inlet of the pelvis, the obstetric outlet of the pelvis and the vulvovaginal outlet. This makes six principal stations, as shown in the diagram.

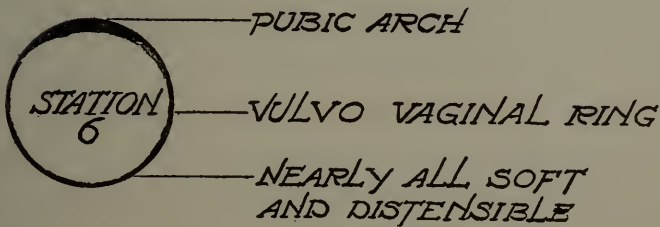
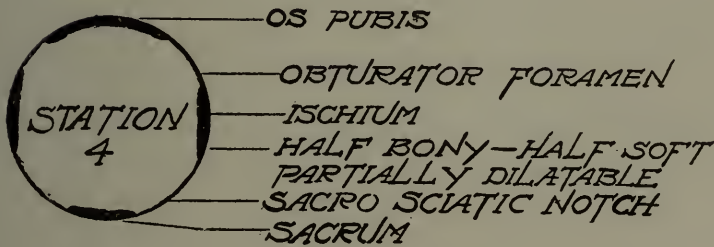
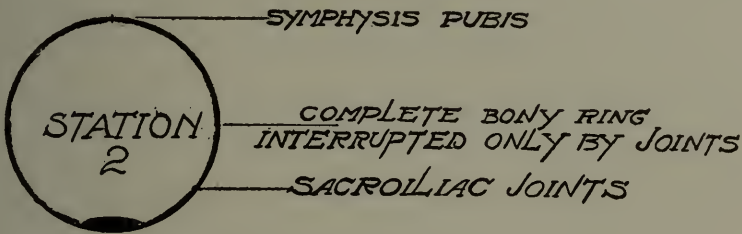


Diagram II

Any variety of head presentation would be considered as located at a certain station when its greatest participating circumference is at that station. In the vertex variety of cephalic presentation, for example, the head is at station I, until the suboccipitobregmatic circumference occupies the pelvic inlet, when it is at station II. When the suboccipitobregmatic circumference or

plane has passed through the inlet, it is in the pelvic cavity and the head is at station III, etc. It is obvious that the canal will ordinarily offer serious resistance to the passage of the head at only three levels, viz., that of the constricting rings.

Disregarding the facts that none of the so-called rings are circular, and that the term "plane of the obstetric outlet" is a misnomer, let us study a little more closely the walls of the canal at stations II, IV, and VI. The circumference of each of these rings, when not occupied by the fetal head, diminishes from above downward, i. e., IV is less than II and VI is less than IV. This accounts for the fact that a head which has passed through the pelvic inlet will meet with some resistance at its outlet, and that having passed through the pelvic outlet it again meets with resistance at the vulvovaginal outlet. A brief consideration of the character of the rings, however, shows that this resistance is of a less serious nature as we proceed downward, as shown by Diagram II.

While at station II (the obstetric inlet), the ring is entirely bony, relieved only of being absolutely undilatable by the presence of the symphysis and the sacroiliac joints, which allow of slight expansion. Station IV, the obstetric outlet is about one-half bony and one-half ligamentous and fleshy, permitting of considerable expansion in the posterior portion of its circumference. Station VI, the smallest ring, the vulvovaginal outlet, is bony only in its anterior one-third and either readily dilates, or tears all too readily, in order to permit the passage of the head. Were it not for this arrangement of diminishing size but increasing elasticity from above downward, and for the curve of the parturient canal, every labor would be precipitate the moment the pelvic inlet was passed.

The looseness of our customary phraseology for describing the station of the head, has been responsible for much corresponding haziness of thought regarding this important matter. Such phrases as "fixed head," "head partly engaged," "head engaged," "head on pelvic floor," "head on the perineum," etc., not only fail, as a rule, to locate the exact station of the head, but encourage one in feeling that the exact station is a matter of no great importance. This is far from being the case. The knowledge of station of the head is of an importance coordinate with that of the presentation or position. In fact, presentation, position and station should always be considered together, and have

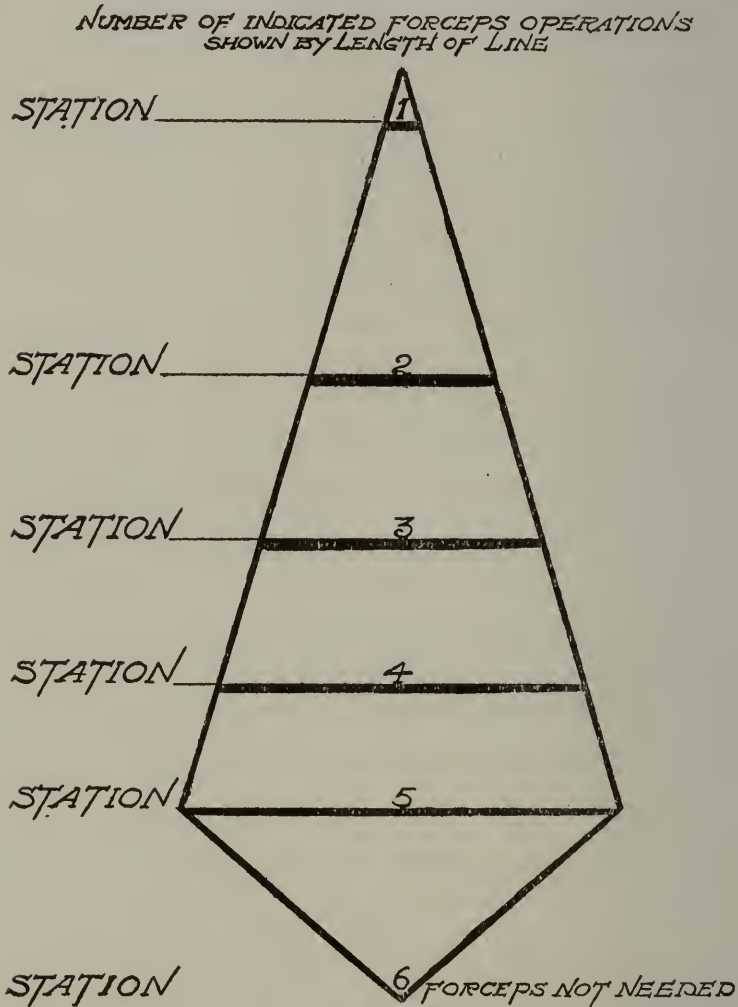
a mutual relation in obstetric diagnosis and prognosis, fairly comparable to the clinical trinity, temperature, pulse and respiration, whose relations to each other are of such exceptional diagnostic and prognostic import.

The phenomenon of lightening or settling is dependent upon a change in station of the presenting part. In cases where doubt exists as to the exact duration of pregnancy, the occurrence of lightening is our best guide to the probable date of labor. Its advent, if well marked and definitely determined by physical examination, solves many a grave doubt as to the possibility of pelvic delivery in cases of contracted pelvis. The complete absence of lightening in a primiparous patient should be the occasion for most careful examination. Malpresentation of the head, breech and shoulder presentations, and pelvic contraction are all common causes for high station of the presenting part at the beginning of labor. In a primiparous patient every hour of labor which elapses with the head still above station II increases the doubt as to the outcome. In *any* labor failure of the presenting part to enter the pelvic brim after two hours of good second stage pains with ruptured membranes, indicates serious obstruction of some nature. Not only is the prognosis distinctly influenced by the station of the presenting part at the various periods of labor, but the treatment is very largely dependent upon it. This I have attempted to indicate by the accompanying diagrams and legends. (Diagrams III and IV.)

So long as the head remains with its greatest participating circumference above the pelvic inlet, version, pubiotomy or Cesarean section are elective procedures for operative delivery. Forceps are very rarely indicated. Anything approaching a true cephalic application of the forceps is difficult at this time. The integrity of the uterus and vaginal vault is seriously endangered by any but the most skillful application, and even in the most expert hands numerous dead, dying, or permanently damaged infants are the result of the use of the forceps on a head which fails to enter the pelvic brim under the influence of good pains. Not only is this true, but because of the delay and manipulation incident to the use of forceps we greatly diminish the advisability and safety of two of our elective procedures, viz., version and Cesarean section. Pubiotomy remains practically our only alternative under these circumstances, and even this procedure is

desirable only if the forceps attempt was made with hospital surroundings for aseptic work.

By the time forceps has been tried and proven unsuccessful, the lower uterine segment is usually so thinned out and contracted about the child as to make uterine rupture a very real risk of version. The considerable length of labor, the elapsed time after rupture of the membranes, and the manipulations which have been made, all contribute their share toward making



Cesarean section a procedure of great danger to the mother and of doubtful value to the child after an attempt at forceps.

Within the past year I have had two cases illustrative of the serious risk of maternal damage involved in forceps application at station I.

Mrs. X. Primipara, in the care of a midwife, who called a physician because of lack of progress of the labor. The doctor



applied the forceps but failed to deliver. On examination at the hospital, I found the patient bleeding freely; pulse 160 and weak; the fetal heart not audible. Examination under anesthesia revealed a contracted pelvis, the head above the brim, and a perforation of the vaginal vault through which the hand could be passed freely into the abdominal cavity. The child was delivered by cranioclasia and the vaginal rupture packed. The mother recovered after a rather slow convalescence.

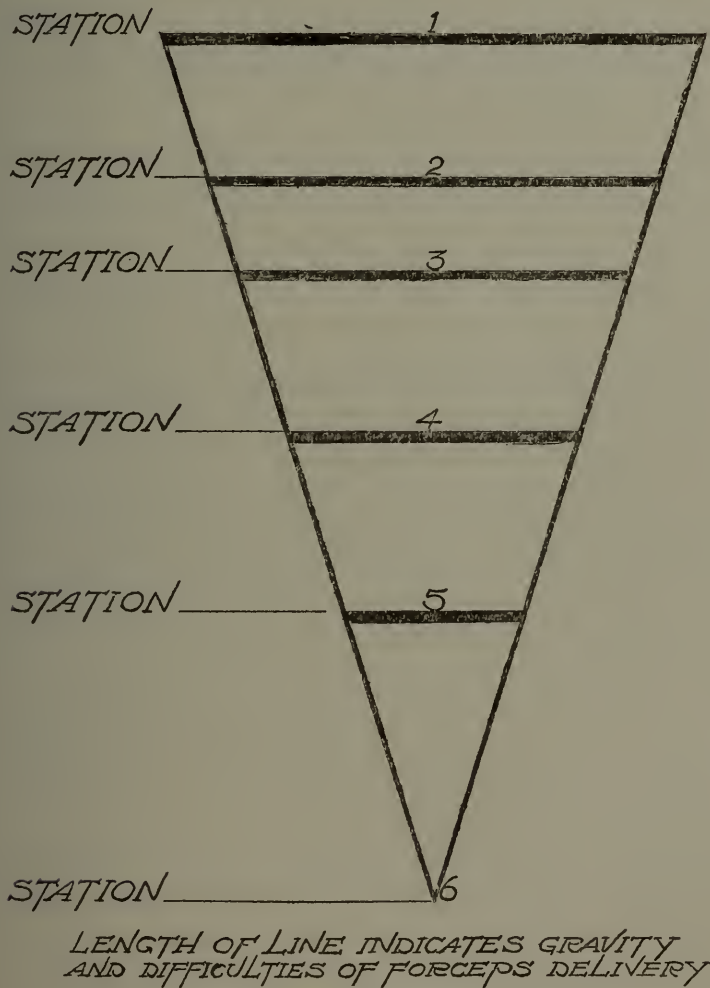


Diagram IVJ

Case II: Mrs. Z. Primipara, attended by a midwife, who called a doctor for lack of progress of labor and a prolapsed cord. Forceps attempted by the physician but failed to deliver. Forceps slipped repeatedly. Upon examination at the hospital I found a dead child (cord prolapsed), the head above the brim at station I, and a rupture of the vaginal vault about two or three inches long.

The child was delivered by cranioclasia, and eventually embryotomy. Laceration of the vaginal vault packed. Mother recovered.

Numerous cases of craniotomy upon dead or dying babies, and some upon living babies, because of forceps attempts upon a head above the brim can be cited by most obstetric consultants. If the station of the head is high above the brim at the beginning of labor the attendant should be on his guard against repeated vaginal examinations. If it retains its high station well into the second stage the patient should be taken to a well equipped hospital before attempts at delivery are made, because of the great probability of serious obstruction.

With the head at station II, version and Cesarean section are sometimes still possible although rarely indicated. Forceps delivery is still so serious a procedure as to make hospital surroundings desirable.

With the head at station III or below, forceps is the only method of delivery likely to be necessary. Version and Cesarean section are both out of the question. Except for such rare conditions as persistent mentoposteriors or funnel pelvis, forceps delivery is usually successful when carried out by the attendant at the patient's home. A contracted pelvic outlet means that the head will be obstructed in its passage from station III to IV. If forceps fail to deliver such a case and the child is still in good condition, it has been recommended that pubiotomy should be done. The author has never met with such a case, but he believes that the suggestion is a good one, both for this condition and for impacted face cases, chin posterior, in the same situation.

In conclusion, let me urge that the exact station, as well as the presentation and position, should always be carefully considered before deciding the treatment in any case of delayed labor.

1834 East 65 Street.

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WANTED—Public sentiment that will value men as highly as animals, that will give to the next generation a heritage of clean blood and good hope, that will not leave men to die untended and alone, but that will remember man lives but once on earth and should be happy while he lives.—  
(*Va. Health Bulletin—Almanac.*)

## A Case of (Hysterical?) Sudden Monocular Real Blindness with Recovery

By W. C. TUCKERMAN, M. D., Cleveland

Mrs. L. B. L., age 45, was referred by H. D. Fowler, M. D., of Collinwood, September 16, 1912. The family history is good and gives nothing that might bear upon the case, except that of her four sisters, all of whom are married, two have remained barren, although healthy. Her personal history is devoid of anything which would seem to have a bearing on her present condition. In her fifteen years of married life she has never become pregnant and this barrenness is not intentional. About three years ago she bought a pair of glasses because her eyes tired easily. These she wore only about a week. For the last two years the patient states she has been quite nervous, which is unusual for her. Her menses ceased one and a half years ago and have appeared only twice since.

In the fore part of last May, while sitting reading in the evening, the patient states that the right arm went to sleep and that by the next morning it was partially paralyzed, (a typical wrist drop according to her description). This gradually disappeared in about six weeks. In the latter part of June, shortly after its disappearance, a small hard lump about the size of a dime appeared under the skin in the middle of the forehead. This lump was at times painful and the skin over it reddened. The lump finally disappeared immediately following a coughing spell accompanied with a sensation as though something had broken in the head, and coincident with this the whole right side of the face "felt like a block of wood." This latter sensation gradually disappeared in some two weeks' time. Doctor Fowler states that at this time there was apparently a neuritis of the right arm but at no time was there any paralysis present. Both the husband and Doctor Fowler state that although there was a red spot in the center of the forehead (probably due to rubbing) there was at no time any lump that they could feel.

The present illness began about the first of August, when the patient "saw double with the left eye." This rests wholly upon the patient's impression, as she only tried closing the left eye, which caused the double vision to disappear, but she never tried closing the right eye alone. This condition became unbearable and in two or three days she obtained at a department store bifocal glasses, R. + 75 ax.90; L. + 50 ax.90; + 2 scale. As soon as the glasses were put on the "double vision on the left side" disappeared and her eyes gave her no further trouble till September 4, when she noticed dimming of the vision of the right eye. The vision progressively failed in the right eye and she was totally blind three or four days before I saw her.

September 16, 1912. Examination showed a decidedly nervous woman, 5 feet, 8 inches tall, spare, weighing 127 pounds, but otherwise apparently in good health. Romberg's sign was absent and the patellar reflexes were, if anything, exaggerated. With both eyes open, the pupils were equal and their reaction to both light and accommodation and the external ocular movements appeared normal. In my hurry I neglected to accurately check the light reflex before putting the eyes under homatropin. When under homatropin the right eye wandered aimlessly when the left was covered and was totally blind to all tests used, including the prism light displacement test, which by most is considered conclusive. The blind eye always followed the prism displacement of the seeing eye. The right disc showed slight paleness and a crescent on its temporal border and also several pigment streaks about its border; the blood vessels

*Presented before the Ophthalmological and Oto-Laryngological Section of the Academy of Medicine of Cleveland, Friday, November 22, 1912.*

appeared normal. The vision of the left eye with correction was 20/20, and its fundus was normal in every respect, not even showing pigment spots.

The following day, September 17, with the eyes not under drugs, the result was checked. This gave, when both eyes were open, external ocular movement and pupillary reaction apparently normal, except that the right pupil was slightly larger. Separate testing showed that both pupils reacted to light and accommodation controlled from the left eye. Neither reacted from the right. When the left eye was covered the right eye wandered aimlessly. The patient asserted that the right eye was totally dark. Light reflex, prism displacement, complementary color, and blinking to motion tests were all tried and all failed to show any evidence of vision. The cornea was sensitive to touch. A provisional diagnosis was made of hysterical blindness and the patient put on a mixture of pilocarpin, potassium iodid and cinchona, and referred to Doctors Cummer and Dexter for Wassermann reaction.

September 19, 1912: The patient believed she had perception of light but tests were contradictory. The right pupil reacted erratically to light in spite of the fact that care was taken to preclude the possibility of transillumination to the other eye.

September 24, 1912: The right pupil reacted definitely to light and tests for perception of light were positive. At this time, the Wassermann reaction being reported strongly positive, active antisymphilitic treatment was begun. It was started with one decigram of salvarsan by hypodermic and mercury protiodid and iodids by mouth.

September 26, 1912: Could recognize open and closed hand at two feet, when placed between the patient and the light.

September 28, 1912: Counted fingers at two feet. The pupillary reaction to light was good and in the prism displacement test the right eye still followed the left implicitly.

Between October 1, when the vision was 2/15 and the prism test unchanged, and October 12, when the vision was 20/40 minus, and the prism caused definite diplopia, the prism tests were contradictory. From then to the present the vision of the right eye has progressively improved while the appearance of its fundus has remained unchanged. At present, with the following corrections, R. + 75 + 50 ax. 90, L. + 50 + 50 ax. 90, the vision of both eyes is 20/20.

In spite of the fundus findings and the strongly positive Wassermann reaction, the history leads me to believe that the blindness itself was hysterical. This belief is strengthened by the fact that definite improvement was evident before the anti-symphilitic treatment was begun, and further that the fundus, which was examined routinely each time the patient was seen, has remained unchanged throughout. The prism test showed conclusively that the blindness was real. With regard to this test, however, I was surprised at the amount of vision that had returned (20/40 minus) before the blind eye definitely followed its own prism. In considering the blindness hysterical I do not wish to be understood as doubting the possibility of syphilis as an underlying factor. Besides, one must always be chary of making a diagnosis of a condition as hysterical, as a case of sudden blindness and sudden restoration of vision of both eyes reported by Waughop (*Amer. Jour. of Insanity*, 1895, LII, 536)

illustrates. This patient accommodatingly died of gastric cancer and autopsy made twelve hours after death revealed a circumscribed abscess at the base of the brain surrounding the tubercula quadrigemina including the crura.

In conclusion I wish to call attention to a case reported by George C. Harland, Philadelphia, under the title "Transient Real Blindness in Hysteria" (*Jour. Mental and Nervous Diseases* 1900, *XXVII*, 209), on account of its striking similarity in several respects to the case at hand. Mrs. K. B. Complaint, loss of vision of the left eye for three days. History of double vision in both eyes a month previous. Complaint of much frontal headache. The fundus was negative, except for the slight possibility of hyperemia. The right eye showed full vision, while the left counted fingers at four inches. Three days later the left eye was absolutely blind to the prism light test. The patient did not return for ten days, at which time she joyfully announced that the vision was returning. The vision was then 20/70. The patient never returned again, probably because the eye went on to complete recovery. Harland stated that he had met but one other case in which it could not be demonstrated by test that the patient actually saw in the alleged blind eye.

733 Osborn Building.

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**Multiplication of Organizations a Danger in Public Health Campaign.**—Never before has there been the amount of interest in public health matters that is manifested today, nor has the general problem of public health heretofore presented so many different aspects. As a result of the tendency toward system and the collection of data, there have come into existence, especially during the last ten years, a large number of organizations, local, national and special, which have taken up different phases of the health problem as their peculiar work. It is only when one attends some great gathering like the recent International Congress on Hygiene and Demography at Washington, and sees collected under one roof the results of the efforts of most of these bodies that one realizes their number and variety. We have just reason to feel proud of the large number of well-planned and well-managed philanthropic societies which are endeavoring to develop some part of the field of public hygiene. To the thoughtful observer, however, the present tendency suggests the need of caution against the danger of overorganization. In the business world the tendency is toward consolidation and simplification, rather than toward complexity and multiplicity. It would be well for those interested in the advancement of public health to keep this clearly in mind. An unnecessary organization, or two doing the work which might be done by one, can mean only wasted effort and money, or at least a higher cost of operation than is necessary. Existing organizations and the possibility of making some of them do a proposed line of work should be carefully considered before new associations are created, while the general tendency should be toward closer cooperation, consolidation and, when possible, amalgamation.—(*J. A. M. A.*)

### A Case of Fatal Poisoning by Tobacco

By EDWIN C. GARVIN, M. D., Cleveland

The patient, O. W., aged six and one-half years, was a healthy female; in fact, had not had a serious sickness in three years. The child, however, had pin worms, and to relieve this condition the mother gave her a rectal injection of one pint of water, in which was dissolved one and one-half teaspoonfuls of smoking tobacco. The child immediately complained of faintness, inability to stand, and great nausea, and soon commenced to vomit very severely. The bowels also acted at this time and a part at least of the injection was expelled. These symptoms continued for about fifteen minutes, when convulsions ensued, lasting about twenty minutes. The child then became quiet, and died in collapse about forty-five minutes after administration of the injection. The family physician being out of reach, considerably delay occurred, and the child died shortly before my arrival at the house. No treatment was of course given. I have thought it worth while to report this case, for two reasons, namely, because of the rarity of fatal tobacco poisoning, and because tobacco infusion, being an old remedy among the laity for intestinal parasites, the physician might, in an unguarded moment, give his tacit consent to the use of a dangerous poison, which, if it produce a fatal result, as in this case, would cause him great embarrassment, or might even involve him, in an action for damages.

9209 Miles Avenue, S. E.

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**Freak Medical Legislation.**—Colorado has up to date supplied the prize freak law for 1913. It is the form of an amendment to a new medical practice act, introduced by Dr. E. E. Kennedy, a member of the house of representatives. The amendment provides that surgeons operating for appendicitis are to submit the appendix for examination following the operation. In case the appendix proves to be normal, the physician is to be deprived of any fee for the operation and is to be liable to fine and imprisonment. The decision as to the normal condition of the appendix is to be made by a committee of three physicians to be named by the patient or by his relatives. The usual rash statements to the effect that "90 per cent of all operations for appendicitis are unnecessary," etc., have appeared in the local newspapers in connection with this bill.—(J. A. M. A.)

# The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and  
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

THE OFFICIAL ORGAN OF THE ACADEMY OF MEDICINE OF CLEVELAND

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2318 PROSPECT AVENUE

Entered March 7, 1902, as Second-Class Matter, Post-Office at Cleveland, Ohio, under  
Act of Congress of March 3, 1879.

Organized January 20, 1902

Capital Stock \$6,000

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Short notes upon clinical experiences or reports of interesting cases will be welcomed by the editors.

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## EDITORIAL

### Induced Pneumothorax in Pulmonary Tuberculosis

In these days of newspaper cures for tuberculosis exploited in a manner all too saffrony sensational, it is well not to lose sight of such advances in the treatment of this disease as are actually being made. Years ago pneumothorax was looked upon as one of the most unfortunate end results of lung tuberculosis. Coming late, as the direct result of the progression of the destructive process to the pleura, it was usually followed shortly by death. Experimentally it was shown that induced pneumothorax in healthy animals is a benign condition, leading to few disturb-

ances. Likewise, spontaneous or traumatic pneumothorax in human beings may be associated with very few symptoms; even upon exertion there may be only the slightest dyspnea.

It was soon noted that pneumothorax as a complication in tuberculosis does not always lead to a fatal termination. Cases began to be reported in which the entrance of air into the pleural cavity and the throwing out of function of the diseased lung were associated with an amelioration of the clinical condition. Hemoptysis, in particular, was found to cease rapidly, and a number of instances of healing of the quiescent lung were reported. As the result of such clinical observations Carson, in 1821, and Adams, in 1887, suggested induced pneumothorax as an aid in the treatment of lung tuberculosis. Forlanini, in 1892, was the first to put the practice into effect, and he and a number of observers following him have reported good results after the procedure.

Hamman and Sloan, in the *Johns Hopkins Hospital Bulletin* (February, 1913, XXIV, 83), have published the results of their experience with the method in twenty cases. Unfortunately, all of their cases were "suffering from moderately or far advanced pulmonary tuberculosis," so that the value of the procedure in selected earlier cases, especially those with involvement of only one lung, is not apparent from their communication. They report their untoward findings in a very frank manner and ascribe death in three cases to the induction of pneumothorax; in three cases it was impossible to produce pneumothorax because of pleural adhesions, and in seven the pneumothorax was incomplete; four cases developed pleurisy with effusion. In spite of these untoward results, largely due to the late stage of the disease and the bilateral involvement of the lungs, they conclude that: "Pneumothorax has, in most instances, an immediate and striking influence upon cough and expectoration. Tubercle bacilli may disappear from the sputum.—Constitutional symptoms abate more slowly. In most instances there is at first a loss of weight followed by a gradual rise.—The total collapse of one lung causes surprisingly little inconvenience.—The procedure is of great value in the treatment of pulmonary hemorrhage.—While induced pneumothorax will never become a routine method for the treatment of pulmonary tuberculosis, still in selected cases it offers a prospect of temporary and permanent relief when the usual methods of treatment have been unsuccessfully tried. Quiescent



lesions in one lung with acute recrudescence in the other are most favorable for the treatment. Its use need by no means be limited to strictly unilateral lesions, but when there is advanced disease of both lungs little benefit can be expected. It would seem advisable not to withhold the treatment until the patient is hopelessly advanced, but to apply it judiciously to suitable moderately advanced patients in whom the disease tends to progress in spite of appropriate treatment."

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### Limiting Medical School Enrollments

At the beginning of the present academic year the medical department of Johns Hopkins University found it necessary to announce that, owing to limited space and facilities in the various laboratories, the enrollment at that school must be limited in the future. The total enrollment for the present year is 355, an average of over eighty-eight for each of the four classes; fifty students were refused admittance because of lack of room. That the school which was the first to require more than ordinary preliminary training for admittance should also be the first to recognize this other inevitable trend in medical education was to be expected. And just as the other medical schools soon saw the necessity for increased entrance requirements, so also must they soon see that the good school is that which gives the best training, laboratory and clinical—not that which has the largest enrollment. And the discriminating student will select that school which offers him the nearest to individual teaching in the laboratories and which has the largest number of clinical cases per student during the final two years of the course.

Medical education is the most expensive form of education, the cost per year per student in the better schools being more than three times as great as the yearly tuition fees per student. Medical schools can no longer be run at a profit, and any school which does return a profit from tuition fees is nothing more than a diploma mill. Increased cost of operation and increased entrance requirements have operated together to close the doors of many medical schools during the past few years. Those which remain must frankly admit their limitations. No school has the moral right to accept tuition fees from a greater number of students than it can properly train. The laboratories and their equipment and teaching staffs are capable of quite wide expansion; a school might give entirely satisfactory instruction during

the first two years of the curriculum, and yet not be a place for the training of doctors. In the final analysis, the number of *hospital beds directly controlled* by the school and the number of *patients actually available* for teaching purposes must be the chief factors in determining what the proper enrollment of a medical school should be.

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### Thormedin to the Dump

In the issue of THE JOURNAL for March, 1912, (page 213), somewhat uncomplimentary reference was made to the exploitation of Thormedin by E. R. Squibb & Sons. This called forth a letter which, with comment, was published in the succeeding issue (page 306). It was quite a shock to us to find a goat with the brand of E. R. Squibb & Sons wandering among the lovely sheep of commercial rectitude. More shocking was the rather unconciliatory tone of the letter above mentioned. Most shocking of all was another letter from the firm, not published because our easily wounded susceptibilities could not stand to see in cold print the insinuation that our attitude was based upon the fact that E. R. Squibb & Sons did not use the advertising pages of THE CLEVELAND MEDICAL JOURNAL. Even yet, after almost a year, we find it almost impossible to withhold the stinging shafts of our sarcasm. However, Thormedin is now dead, and because we hope that E. R. Squibb & Sons will never, never do it again, even we bring to the bier a red, red rose to signify that the dead past may well remain buried—or remain well buried—with its dead.

The final action of the Council on Pharmacy and Chemistry of the American Medical Association *in re* Thormedin has been published (*Jour. A. M. A., February 8, 1913, page 462*) and the approval of the Council has been withheld. Thormedin is found to be in conflict with Rule 6 of the Council in that “no particular virtues can be ascribed to the thorium or thorium emanations”; with Rule 8, in that the name of the compound is misleading, since “although the action of Thormedin depends on sulphuric acid, the name ‘Thormedin’ suggests that its activity depends on thorium or thorium emanations”; and with Rule 10, in that “sulphuric acid having long been used as a cauterant, the attempt to introduce it as a new discovery must be held contrary to therapeutic advance.” Again, in view of the nature of the correspondence of E. R. Squibb & Sons with us, we find it almost as

difficult to refrain from chortling "I told you so" as it was to restrain the sarcastic barbs hereinbefore mentioned. However, because of the published statement of E. R. Squibb & Sons that "we now announce that we have discontinued the manufacture and sale of Thormedin," we are willing, as Mrs. Malaprop might have said, to "let doggoned be bygoned." We trust that a name which long stood for the best in the relations of manufacturer to physician will never again be found connected with anything that savors of exploitation.

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### The St. John's Hospital Fund

The enthusiasm which marked the collection of the \$150,000 fund for St. John's Hospital would seem to indicate that the people appreciate the needs of the hospital. That the section of the city in which the hospital is located is in need of increased hospital facilities cannot be doubted. This is especially true of accommodations for emergency cases. The fund subscribed should make possible modern equipment for caring for from one hundred to one hundred and twenty-five cases, and will replace a dangerous structure by a fireproof one.

Sectarian hospitals, in so far as their wards are not thrown open to teaching and in so far as staff appointments are in the hands of those who can do and have the right to do as they please, are private hospitals in the strictest sense. In matters of management perhaps only those immediately concerned have any interest. But when sectarian hospitals are built with funds solicited from the general public they place themselves under obligations to give the greatest measure of good service to the general public. Hospital rebuilding and enlargement give a chance or an excuse—depending upon the individual viewpoint—for staff reorganization. It is to be hoped, in the case of the new St. John's Hospital, that nothing will be done without mature deliberation and consideration, so that the completed structure may in the fullest sense subserve the proper functions of a hospital.

### Cooperation of Federal and State Health Authorities

The Public Health Service has recently inaugurated an attempt to get at the distribution and spread of epidemic diseases in the United States through the cooperation of the various state health departments. Primarily limited by the many restrictions rising from the states rights doctrine, the service has accomplished much through its readiness to cooperate with state and local authorities, and has indeed become a court of last resort to communities with problems beyond their capacity. It is now asking a return for this in the form of reports of diseases in the various parts of the country in such form that it may disseminate the information where it will do most good. It is requesting the various state authorities to send telegraphic news of the appearance of unusual diseases, and of the epidemic occurrence of those more usual to that community, and to follow up these telegraphic reports with monthly reports of these and of other notifiable diseases.

While monthly reports of morbidity and mortality are made and published by some states, they are not readily accessible, and many of the states do not publish them at all. The importance of knowledge of the location of epidemics and of the apparent direction of their spread in these days of rapid transit and restless business effort is obvious and in some ways analogous to the value of reports of storms from the Weather Bureau. The telegraphic reports requested concern cholera, plague, yellow fever, typhus and Rocky Mountain fever wherever occurring, as well as epidemic occurrence of smallpox, typhoid, scarlet fever, poliomyelitis, diphtheria, and epidemic meningitis. Blanks are furnished for each disease and are so spaced as to allow of filling in on the typewriter, which is of such assistance. The information thus acquired is summarized in the Weekly Public Health Reports which are or should be on file in every health office, and thus the starting points of epidemics, the foci of endemic diseases, the general direction of travel and the distribution, will be made accessible to all, and will be a great aid in prevention and in local quarantine. The resolution that this plan should be put in practice was passed last June in the joint meeting of state and federal authorities, and a conscientious carrying out of its provisions should result in the collection of information and statistics of great value in the immediate attack on epidemic, and should also be a stimulus to the much neglected art of reporting reportable disease.

### Squeals from the Rural Districts

The path of the reformer is beset with many obstacles. If every reform measure always had smooth traveling there would not be much pleasure in reform. We give two examples of what some cross-roads editors think of the State Board of Health. The first, from the New Concord *Enterprise*, is apparently intended to be sarcastic; some of the suggestions, particularly the medicated bath once a year, might prove beneficial:

“The germ hunters have decreed the banishment of the public drinking cup and the public towel. The passenger may now drink from a bottle or his hat. If he desires to remove the smudge from his travel-stained features, he may wipe his face on a newspaper. Why do not the boards of health compel the transportation companies to furnish “individual” cushions or fumigate each seat after it has been vacated by one passenger and before it is occupied by another?

“Why don’t they sterilize the door knobs of cars and public buildings?

“Why don’t they petition the federal legislation to pass a law requiring every citizen of the United States to take a medicated bath once a year, be vaccinated twice a year and sleep in a vacant lot the year round?”

The second, from the Bellaire *Independent*, interests us because of the attempt to classify zoologically the members of the board according to the length of their aural appendages: “The State Board of Health has cited the mayor and other officials to appear before it and show cause why the water filtration plant has not been put in operation. This means that several city officials will have to go to Columbus to tell the State Board of Health something which might be written and sent by mail. There are several good reasons why the filtration has not been started, any one of them sufficient, but the State Board wants to impress the people with its awful power, importance and dignity. The length of the ears exhibited by members of the State Board is the thing that has attracted most notice by careful observers.”

We trust that the aforesaid ears of the members of the board are not made to tingle too severely by such cruelly unkind criticism.

## Department of Therapeutics

Conducted by J. B. McGEE, M. D.

**Whooping Cough:** In the January number of the *American Journal of Diseases of Children*, Arrie Bamberger considers the vaccine therapy of whooping cough. Because of the unpleasant and distressing symptoms of whooping cough a large number of drugs, as well as other supposed remedial agents have been tried in its treatment, all of which have met with more or less failure. Since the discovery of the supposed specific bacillus of whooping cough by Bordet and Gengou in 1906, the trend has been to develop a specific vaccine or serum. The vaccine used by Bamberger was prepared from deep swabblings of the throats of children having pertussis, each ccm containing 20,000,000 dead organisms. He reports six cases under this treatment, and acknowledges it to be in the experimental stage. He used a dosage of 20,000,000 bacteria every other day, no case receiving less than five injections and none more than fifteen. His conclusions are: 1, The treatment seems rather to lessen the severity of the disease and abort complications, than to shorten the duration markedly, although only two of his cases lasted as long as six weeks. 2, The sooner the treatment is begun, the better the results. 3, He used less than Graham; his minimum dose was 240,000,000 and maximum 300,000,000. Nevertheless he would advise larger doses, say 500,000,000 and more, and more frequently, as every day, as he thinks the course of the disease can be cut short by so doing. 4, He believes this method of treating whooping cough is deserving of a trial, as it certainly is harmless and may prove to be of great value.

**Paralysis Agitans:** In the *International Clinics (Vol. IV, Series 22)*, Wm. N. Berkeley considers the parathyroid treatment of paralysis agitans. No hypothesis of the causation of the disease has gained any wide credence except that vaguely suggested by Victor Horsely in 1885, and more clearly enunciated by Lundborgin in 1904, and by Berkeley independently in 1905. This hypothesis is that paralysis agitans is due to deficient secretion of the parathyroid glands and these views have been confirmed quite generally by scientists in this country and abroad. Clinically he first notes that a properly identified gland must be used. Much of the commercial material can be given by the tablespoonful without danger or help. The only glands available for experiments for a long time to come will be the ox glands. Horse gland is too expensive, rabbit gland and sheep gland too small. Apparently bits of lymph node, thymus, accessory thyroid and fat have done duty in many laborious experiments. A second point is that nothing much in the way of favorable results can be hoped for except from relatively small doses continued through a long period of time. Some patients have begun to respond in a week; some have shown no effects, good or bad, in less than six weeks. In some cases, three months of patient and careful administration will have to be allowed before any conclusion, good or bad, is drawn. The clinical benefit has consisted in diminished rigidity, lessened pain, salivation cured, shaking diminished or cured, voluntary control of the muscles greatly increased, and restlessness or insomnia nearly or quite abolished. The early cases in younger patients have responded with more speed and completeness, but unfortunate bedridden patients who have suffered for fifteen years with the disease have been quite often remarkably helped. He has had but one or two patients, out of the hundred and more in his own care, who really had an idiosyncrasy for ox parathyroid. These could not take it in any form or dose without such disagreeable by-effects, as nervousness and insomnia, that it was impracticable to continue the medication. He first used the commercial parathyroid gland. This worked well in a few cases, but was found so variable and uncertain in action that it had to be given up. After various trials, his latest process, which has given great satisfaction, is as follows. The nucleoproteid extraction

process (Beebe's method) is adhered to generally, but the result is that within eight or ten hours after the warm glands leave the bullock a minute amount of smooth yellow powder is obtained, which stands physiological tests admirably, is stable, easily handled and does not require the icebox for its preservation. The powder is rubbed up with milk sugar and dispensed in sealed and dated bottles of eighty capsules, each containing one-fiftieth of a grain of parathyroid nucleoproteid. The average dose is two per day, sometimes less than this where the patient is sensitive to the action of the remedy. This preparation is the best he has so far tried. There are no special contraindications, and satisfactory results usually follow small doses over a long period of time, three months to a year. When the stomach cannot retain food, a sterile hypodermic preparation of nucleoproteid must be used.

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**Renal Disease:** Lewellys F. Barker, in the January number of the *American Journal of the Medical Sciences*, presents some therapeutic principles based on our present knowledge of renal disease. As to prophylaxis, he asserts that every individual who suffers from sore throat, tonsillitis, or a "bad cold" with fever, should be put to bed and kept warm there, until the infection is overcome. Not only would much renal disease be thus avoided, but also many serious diseases of the heart and of the joints. In the treatment of renal diseases, the dictum of Traube still holds good: "Protect the kidneys and control the heart." In the protective therapy we avoid, as far as possible, all further injury to the kidney by intoxication (lead, gout, alcohol, etc.) or infections (chronic tonsillitis, anginas, etc.) and lessen the work of the kidneys, by (1) choosing a suitable diet, (2) to a slight extent by increasing elimination by other organs (skin, intestines, lungs, etc.) and (3) by lessening the amount of physical or mental work done each day, and by advising periods of rest, lying down in the middle of the day. In cases in which the renal disease is compensated, such protective measures are all that is necessary. In every case of renal disease, the condition of the heart should be carefully watched. "Every renal patient is also a cardiac patient"; in treatment this should always be kept in mind. When the renal disease is not compensated, the kidneys having become insufficient, the rest of the body begins to show certain ill effects, of which the two most important are edema and uremia. In such cases we must make our protective regime still more vigorous, often keeping the patient in bed at complete rest for a time. In combating edema in renal disease, we use diuretics, a salt poor diet, mild purgatives and, when necessary, heart tonics. Diuretin and the still more powerful theocin are both excellent stimulants to the renal epithelium, while digitalis preparations improve circulation in the kidney. With diuretin, a dosage of 0.5 gram at 2 P. M. and the same amount at 5 P. M. every other day for a few days may suffice; if not, as much as 4 grams may be given in one day. With theocin, 0.1 to 0.2 gram at 10 A. M. and 4 P. M. every other day for a few days may suffice; if not as much as 0.8 to 1.0 gram may be given in twenty-four hours.

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**Sparteïn Sulphate:** George E. Pettey, in the *American Journal of Clinical Medicine* for January, writes concerning the therapeutic virtues of sparteïn sulphate. He believes that the disappointing effects which have generally followed the use of this agent are due to the fact that it has been given in far too small amounts to produce the therapeutic effects of this remedy. He has found the widest difference of opinion among men of equal standing in the profession as to the value of the drug, but believes these statements are accounted for by the differences in their views as to proper dosage. Most authors give the dose of sparteïn as from one-fifth to one-third grain and the U. S. Pharmacopeia puts it at one-fifth of a grain, and these are the amounts in which this alkaloid has been mainly tried. Bartholow and Ringer give

it near the proper dose, as from one-half to two grains. He believes the true dose, however, to be nearer one and one-half to two grains; in fact, two grains by the stomach is as small a dose as can be depended on, while hypodermically one and one-half grains is a fairly effective dose, but there is no reason why this should not be two grains. Spartein is nontoxic when administered in any reasonable amount. It is certain and definite in its action, and in his experience deserves above all other remedies to be classed as a heart tonic—a heart regulator. It does just what we want done when we administer a heart tonic, without doing those things we do not want. It is prompt in its action, its effects being well established within an hour; he asserts that it has almost the promptness of strychnin with the sustained action of digitalis. As an agent for correcting irregularities of the heart it should be given first place. It corrects these with great promptness, and its sustained effect makes its frequently repeated administration unnecessary. An initial dose of two grains should be given, to be repeated in two or three hours; after that it need not be administered oftener than every four to six hours. Spartein is a true and reliable heart tonic, an excellent nonirritating diuretic, and is entirely free from untoward or objectionable effects.

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**Variable Temperatures:** In the January number of the *Medical Review of Reviews*, Beverley Robinson states that for many years he has noted subsequent to typhoid fever, especially, ups and downs of temperature which he has not always been able to account for successfully. Gradually they have disappeared, precisely why he could not say positively. These variations of temperature have been a source of worry and annoyance to him and have occasioned anxiety and doubt to the minds of those nearest and dearest to the patients and also to watchful attending trained nurses. Sometimes he has believed in a reinfection of the patient with typhoid germs, and then he has felt that it might be many days or weeks before he could hope for the reestablishment of good health, no matter what course were followed. Fortunately, even in some of these instances he has been agreeably surprised, for after a few days the temperatures have struck normal and remained so. This being true, he has merely said the reinfection was fortunately slight. According to circumstances, he has treated these cases differently. When he could discover no special indication for correct treatment he has given a little quinin at stated intervals for a few days and noted results. If fever soon became normal, he reasoned that quinin is probably the least injurious of drugs, used intelligently, to correct aberrant temperatures, even of unknown causation, and it will now and again apparently accomplish the desired result. When quinin fails, he looks at the tongue, examines the stools carefully and considers the dietary. If the tongue is coated and the bowels constipated, he gives gray powder and follows it after several hours with a seidlitz powder, and if there are still loose, foul smelling or undigested stools, he repeats this treatment. If food has been abundant and the temperature fails to become normal, he diminishes it, and if food seems insufficient he increases it. Later he often gives some bowel and stomach corrective and disinfectant, as milk of bismuth. What is eminently true of typhoid fever may also occur after pneumonia or other acute febrile disease. In pneumonia patients he permits some bodily exercise sooner than after an attack of typhoid.

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**High Blood-Pressure:** Spencer L. Dawes, in the *Monthly Cyclopaedia* for December, presents the general treatment of high blood-pressure. As to the curative side, by far the most popular of all drugs used with the idea of cure is iodine in some form, given oftentimes to the point of toleration. While potassium iodid is probably most frequently used in this country, the greater number of French and German clinicians prefer sodium iodid, believing it to be better borne by the digestive tract. This use of iodine is often attended by unpleasant digestive



symptoms, as well as other evidences of toxemia, and its value rests more upon empirical evidence than upon accurate measurement of the blood-pressure with a manometer. It is most desirable in the use of iodine to recollect that it should not be administered during the period of digestion, because not only will iodine and starch produce an insoluble iodide of starch, but there are the disagreeable effects of iodine upon the digestive tract, too well known to need description. For symptomatic treatment and for immediate effect upon the hypertension, as well as for continued use over a long period, no class of drugs equals the nitrites, and of these the most frequently employed is nitroglycerin. Unfortunately the effect of the nitrite is evanescent and the appropriate dose must be repeated at frequent intervals, in order to prevent the secondary rise in blood-pressure which usually follows its primary effect. In addition, if large doses are given over a long period, we are in danger of lowering the blood-pressure to a point where the secreting function of the kidneys is unfavorably affected. It should be stated that the dose of nitroglycerin, as well as the frequency of the dose, is many times greater than is commonly supposed. He quotes LeFevre that "in the treatment of cardiac and renal diseases, the greatest danger next to the abuse of digitalis is the unjustifiable administration of the nitrites." Not all cases where there is high blood-pressure demand or even admit a reduction of tension, for as long as cardiac power compensates for obstruction in the circulation no special treatment is needed.

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**Hemorrhage:** In the *New York Medical Journal* for January 4, G. H. A. Clowes and F. C. Busch write as to the treatment of hemorrhage by means of precipitated blood sera. This is a mode of procedure which has proved of considerable value in treating a most frequently occurring condition in hemorrhage, a low coagulation factor. In upward of one hundred and fifty cases of hemorrhage thus far treated, products precipitated from the sera of human beings, rabbits and horses have been used. Recently, precipitated horse serum has been employed exclusively with excellent results. The observation that even carefully preserved serum lost its coagulating effect on plasma in a comparatively short time coincides with the general clinical experience that fluid blood-serum, unless absolutely fresh, is of little value in checking hemorrhage. Their conclusions are: 1, Blood-serum is found to be of considerable value in the treatment of all forms of hemorrhage due to low blood coagulability resulting from diminished thrombin content. 2, Human serum is in no wise superior to that of a variety of animals. 3, Blood-serum precipitated by means of a suitable mixture of acetone and ether is fully as effective as fresh serum, if not superior to it. Precipitated serum is freely soluble and possess the advantage over fluid serum of being sterile, always available, and retaining indefinitely its capacity to stimulate coagulation of the blood. 4, The product obtained from horse serum appears to yield more uniformly satisfactory results than that obtainable from the sera of other animals and exerts no deleterious effects. 5, The determination of the rapidity with which sera and solutions of precipitated sera at comparable concentrations cause coagulation of citrated blood-plasma affords a simple means of estimating the relative activity of the preparations in question, and consequently of standardizing precipitated sera for clinical purposes. The fear that anaphylactic reactions might result from the use of precipitated horse serum appears thus far to be groundless.

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**Scarlatina:** D. S. Hanson, in the January number of the *Medical Council*, reports on the value of hydrotherapy in the treatment of scarlatina. He has treated many cases in the manner he describes and has been more and more impressed by the benefit received. In fact, he would feel much less confident in the severe types of this disease, as to his success, were he deprived of this valuable adjunct. It has been a matter of astonishment to him that this matter is not more fully discussed

in pediatric textbooks. Nowhere does he find a definite plan outlined, but baths are referred to in a manner that would hardly impress one as being a vital or necessary procedure. He has found 90° F to be the most useful temperature, being cool enough to reduce temperature, quiet nervous symptoms and produce rest and sleep, without producing shock. The baths at 90° F should be given frequently enough to prevent restlessness, usually a ten minute bath every two hours during the height of the disease, diminishing in frequency as temperature and severity of symptoms subside. A very interesting and gratifying phase of this line of treatment is the absence of sequelae; of course, this result could not be expected in every case, although all his cases had such a termination. He very strongly advises in these cases to use no makeshift for this line of treatment, such as sponging with tepid or cool water, wet sheet, etc., but use plenty of water at the stated temperature, so that the child is completely immersed to the neck. Gentle friction should be made upon the skin while in the water.

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### New and Nonofficial Remedies

Since publication of *New and Nonofficial Remedies*, 1912, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

Calcium glycerophosphate is monohydrated normal calcium glycerophosphate, containing 90 per cent of anhydrous salt. It is a white powder, almost tasteless, slightly soluble in water, easily soluble in dilute acids. Glycerophosphates were introduced as "nerve foods" on the belief that the phosphorus was in a readily assimilable form. Recent animal experiments indicate that glycerophosphates possess no advantage over inorganic phosphates in phosphorus metabolism. Dose 0.2 to 0.65 gm in powders, wafers, capsules or tablets suspended in water or syrup, or dissolved by the addition of sufficient citric acid or diluted hydrochloric acid.

Calcium glycerophosphate, Monsanto, is a nonproprietary article and complies with the tests laid down for calcium glycerophosphate. Monsanto Chemical Works, St. Louis, Mo. (*Jour. A. M. A.*, Jan. 4, 1913, p. 45).

Slee's Refined and Concentrated Diphtheria Antitoxin is prepared according to Banzhaf's method. Supplied in packages containing 1,000, 2,000, 3,000, 4,000 and 5,000 units, in vials and also in syringes. The Abbott Alkaloidal Co., Chicago, Ill. (*Jour. A. M. A.*, Jan. 4, 1913, p. 45).

Vacules Cornutul contain cornutul 30 ccm in sealed ampules. The air in the container is removed before sealing whereby, it is claimed, deterioration is retarded. H. K. Mulford Co., Philadelphia, Pa. (*Jour. A. M. A.*, Jan. 4, 1913, p. 45).

The following articles have also been accepted for inclusion with *New and Nonofficial Remedies*: Vacules Digital (H. K. Mulford Co.); Sodium Glycerophosphate (Monsanto Chemical Co.); Staphylococcus Pyogenes Aureus Vaccine (G. H. Sherman); Staphylococcus Pyogenes Albus and Aureus Vaccine (G. H. Sherman); Pneumococcus Vaccine (G. H. Sherman); Meningococcus Vaccine (G. H. Sherman); Isatophan (Schering & Glatz); Isatophan Tablets (Schering & Glatz); Hediosit (Farbwerke Hoechst Co.).

## The Academy of Medicine of Cleveland

### ACADEMY MEETING

The ninety-seventh regular meeting of the Academy was held at the Cleveland Medical Library, Friday, January 17, 1913, the President, H. L. Sanford, in the chair.

The program was as follows:

1, Diseases Mistaken for Tuberculosis and Their Consideration, by J. C. Placak.

Although the diagnosis of lung tuberculosis is easy when bacilli are present in the sputum, the diagnosis should be made before this stage is reached whenever possible. In doubtful cases antituberculous measures should be advised. A great variety of conditions may lead to symptoms which may make the early diagnosis of tuberculosis of the lungs difficult. In children, adenoids and enlarged tonsils, especially when infected, may produce quite marked general disturbances which, when added to those local ones usually ascribed to these conditions, may simulate early tuberculosis. Pyorrhea alveolaris, with its resulting anemia and fever, atypical lobar pneumonia, and chronic influenzal infection may lead to confusion. In the two latter conditions tuberculosis may occur as a later infection. Actinomycosis, although rare, may in physical and other signs very closely simulate tuberculosis; careful sputum examination will clear up the diagnosis. The unilateral localization of tuberculosis helps to distinguish between this condition and chronic bronchitis. Chronic thickening and new growths of the pleura are usually more painful than tuberculosis. Chronic appendicitis may reveal itself by local symptoms which may lead to the belief that tuberculosis of the lung is present; the blood examination and the tuberculin reaction are helpful in differentiation. Chronic endocarditis, with chills and fever, and without definite signs referable to the heart, is often enough treated as tuberculosis. Bacteriemia, because of the general manifestations, and syphilis of the lung, because of the local signs, may lead to confusion in diagnosis. Curvature of the spine and even normal pregnancy may produce confusing lung symptoms. For establishing or for excluding the diagnosis of tuberculosis, examination of the sputum and of the blood, careful physical examination, testing of the sputum for albumin and the injection of tuberculin in some one or more of its various forms should all be called upon as aids. (To be published in full.)

C. L. Graber, in discussion, asked whether leukopenia is present throughout the disease or only during the early stages.

P. A. Jacobs understood that the speaker laid stress upon the von Pirquet reaction in making the diagnosis of tuberculosis. In his experience he had found it helpful in determining whether tuberculosis has existed, but he did not believe that a positive reaction was necessarily an indication of active infection.

B. F. Sager asked in regard to the value of the von Pirquet reaction and also in regard to the truth of a statement recently seen that pneumococci are always the precursors of tuberculous infection.

J. C. Placak, in closing the discussion, said that he agreed that the von Pirquet reaction is worthless as an indication of active tuberculosis in individuals beyond fifteen years of age. In adults it is of value only when associated with albumin in the sputum. Leukopenia is usually present throughout the disease unless secondary infection becomes very marked during the later stages. Concerning the presence of pneumococci, it is true that they are often associated with tubercle bacilli in the sputum; but since they are present in such a large proportion of healthy throats, he did not believe that very great importance could be attached to their presence alone in the sputum.

2, Dysmenorrhea: Etiology and Treatment, by J. H. Carstens, of Detroit.

Dysmenorrhea is only a symptom, which may be brought about by a great variety of conditions. Originally the mechanical view of its

causation was the prevailing theory, but the development of gynecology soon showed that mechanical abnormalities may be absent in many cases. Then "neuralgia" was hit upon as cause, but this also is only a symptom. It is best to consider dysmenorrhea a symptom of local and of general conditions. Local factors which enter in the causation of painful menstruation are obstructive conditions, chronic inflammatory processes involving the pelvic structures, and abnormalities in the state of the uterine musculature. These various conditions produce the symptom mechanically and the treatment must be mechanical. General measures should be undertaken, especially in young, developing girls. Disease conditions other than those of the genital system must be rectified. When the pain is due to pelvic inflammation operative procedures are necessary. Little faith is to be placed in the remedies that have been recommended for dysmenorrhea; if useful at all, they are only temporarily so. Ergot, in the form of 2 grain ergotin pills, three times a day over a period of several months, has seemed to give the best results of any of the internal remedies which have been tried; this may often be combined with iron or other remedies.

In the cases associated with uterine atrophy, attempts must be made to develop the musculature. The atrophy may be due to a failure of the musculature to develop properly from the time of puberty; in such cases menstruation is painful from the beginning and the uterus is of the infantile type. In other cases the atrophy occurs secondarily from disuse in a uterus which has previously functioned normally. For overcoming the atrophy and for developing the musculature the stem pessary has been found to give excellent results. The use of the stem pessary is based upon the stimulation of the natural expulsive action of the uterine muscle. In this way, just as other muscles are developed through the proper exercises, the uterine musculature is developed, the atrophic condition is overcome and the undersized uterus can be made to attain a normal size. The pessary is kept in place for months or years or until the musculature has reached a proper degree of development. Insertion of the stem pessary must be done under anesthesia. The patient is kept in bed for twenty-four or forty-eight hours after its introduction; during this time carbolized douches are used. After the patient is up and about douches are no longer necessary. (To be published in full.)

W. H. Humiston, in opening the discussion, said that the importance of the subject, both to the specialist and the general practitioner, cannot be doubted. He had found that cases of dysmenorrhea usually come early, shortly after menstruation has begun. In these, stenosis of the cervix is usually the cause of the symptom. In older, unmarried women, in whom infection can be certainly excluded, painful menstruation is usually associated with sclerosis and cysts of the ovaries. If infection has been present only operation will give relief. In cases in which there is stenosis of the os and lengthening of the cervix, it was his plan to shorten the cervix. He knew of no pessary which will positively hold in the normal position a uterus in extreme retroflexion; in these, an abdominal operation, preferably shortening of the round ligaments, is necessary and usually brings relief. He doubted whether the general practitioner will be so successful in the use of the stem pessary as Doctor Carstens. The danger of infection from the introduction of such a pessary into the cavity of the uterus must be borne in mind.

E. O. Houck said that although true membranous dysmenorrhea is rare, painful menstruation may be due to the attempts of the uterus to expel membrane-like masses of material which have been formed by agglutination. Pelvic inflammation is an undoubted cause of dysmenorrhea, but is often difficult to diagnose.

W. H. Weir was enthusiastic over the results obtained by the use of the stem pessary in proper cases; the greatest objection to its use was the difficulty with which it is retained. In selecting cases for the use of the pessary it must be understood that inflammation excludes its use. Furthermore, the pessary should not be used in any case in which there is a history of previous infection, even when evidence of the latter

cannot be detected under anesthesia. In these the pessary may light up a latent infection. In the constitutional treatment cascara has been found useful, because most patients are constipated.

F. C. Herrick reported the case of a young woman of 18 years who had violent dysmenorrhea. Physical examination, local and general, was absolutely negative. The father had been under treatment for syphilis. The daughter was found to have a strongly positive Wassermann reaction. Specific treatment caused a rapid disappearance of the dysmenorrhea.

C. D. Williams said that in his experience dysmenorrhea is much more prevalent in American girls than in foreign-born girls; lack of exercise seems to be the main factor. In many cases flexion and stenosis are present and in these he had found a shelf of tissue at the point of flexion, which caused obstruction at the internal os. Removal of this obstructing tissue seemed to give better results than the pessary. In the medical treatment he had found *viburnum prunifolium* helpful. Removal of the ovaries often does not give relief, and may even make the symptoms worse. He asked whether Doctor Carstens had ever seen any cases of inflammation follow the use of the stem pessary.

J. E. Tuckerman reported the case of a woman of 28 years, in whom menstruation was always associated with intense pain in the right side, the pain radiating downward to the right knee. Because of the location of the pain the appendix was removed by a surgeon twelve years ago; the operation brought no relief. Two years ago the uterus was dilated and curretted and a Chambers pessary introduced; the latter was retained for only six days. There was some relief for two or three months, after which menstruation again became extremely painful. In June of 1912, under ether anesthesia, the procedure advocated by Somers of San Francisco, was carried out. The uterus was slowly dilated up to the size of a No. 20 English sound. The vagina was lightly packed with gauze around the sound, which was left in place. The dilatation required forty-five minutes. The sound was retained in place for twenty-four hours, during which time the pain, which was intense, was controlled by hypodermics. The patient has had no trouble during the menstrual period since the operation.

N. Rosewater said that he had found in many cases that the uterus was not the only muscle whose functioning was associated with pain; in these salicylates almost always relieved the condition. In those cases of dysmenorrhea with marked constitutional derangements the general condition must be improved and built up.

J. H. Carstens, in closing, said that he had presented his views, not to show what he could do, but because he was sure that the general practitioner could get equally good results with the proper stem pessary in the proper cases. The pessary, after it is once introduced, is not at all likely to produce infection. The increase in the size of the uterus following the use of the stem pessary in cases of muscular atrophy can be readily detected and measured. In cases of marked flexion there is atrophy of muscle at the point of flexion; simple dilatation relieves temporarily, but the constriction recurs very soon at the same point of flexion. In such cases the uterus must be straightened and must be kept so by a stem pessary; the latter causes a redevelopment of muscle at the point of atrophy. In retroversion the pessary will not hold the uterus straight and an operation to correct the position of the uterus is necessary. He had used *viburnum prunifolium* and had found it to do good, but only because it contains valerianic acid; he now preferred to give the latter in some more palatable form. He agreed that dilatation of the atrophic uterus, brought about in any way, gives temporary relief; but permanent relief can only follow the muscular development which results from the constant contraction upon the stem of the pessary.

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#### OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The sixty-third regular meeting of this Section was held at the Cleveland Medical Library, Friday, January 24, 1913, the Chairman, C. C. Stuart, in the chair.

The program was as follows:

1, Report of a Case of Acute Suppurative Otitis Media, Due to *Bacillus Typhosus*, by D. A. Prendergast.

In a child who had passed through what was clinically a mild attack of typhoid fever, otitis media developed. There was some pain and the drum membranes were slightly reddened; puncture was followed by the escape of a small amount of purulent discharge. In the exudate, sent to the bacteriological laboratory of the State Board of Health for examination, *B. typhosus* was found. The ear inflammation cleared up within a few days and then the child developed symptoms of meningitis, of which the child died during the second week after the otitis.

J. M. Ingersoll, in discussion, said that he had seen only one case of otitis media complicating typhoid from which typhoid bacilli had been isolated. Another case of unusual ear infection which he recalled was one in which a radical mastoid operation was done; a pure culture of diphtheria bacilli was obtained from the pus. The patient had not had clinical diphtheria, but other members of the family had, and cultures from the throat of the patient with mastoiditis also contained diphtheria bacilli.

O. T. Schultz said that the case reported by Doctor Prendergast was primarily one of typhoid. The Widal reaction had been found positive by the City Bacteriological Laboratory some time before the development of the ear symptoms. The spinal fluid withdrawn after the symptoms of meningitis made their appearance was clear; the centrifugalized sediment contained a few pus cells and cocci in short chains; a few of the cocci were intracellular. Upon culture media only a pure growth of streptococcus was obtained. The meningitis would appear to have been a secondary infection in which the typhoid bacillus was not concerned.

Edward Lauder said that he had a case under observation at the present time, the patient having recently had an attack of otitis media; he now has disturbance of vision. He wondered whether there was any connection between the two conditions.

D. A. Prendergast, in closing, said that the ear symptoms were very slight. The drum was punctured merely to be on the safe side. Only a small amount of seropurulent exudate was present and the discharge ceased completely within three days.

2, Report and Presentation of a Case of Malignant Growth of the Orbit, by S. S. Quittner.

The patient, a boy of seven years, had been under observation for three weeks. Four and one-half months ago a burning match came in contact with the left upper lid. Shortly thereafter a small tumor mass appeared in the same lid; most probably the relation of the tumor to the injury was merely a coincidence. The small mass had been removed by another physician. It recurred and in about six weeks was again removed. It has since returned again and has grown very rapidly, forming a large tumor mass, probably sarcoma, which had been pronounced inoperable by the surgeons to whom the case had been referred. From the X-ray plates it was impossible to say whether the tumor originated from the bone or from the contents of the orbit. The mass is now the size of an orange, which size it has reached since the first of the year. The vision of the right eye has remained normal, but recently this eye has begun to show some photophobia. The boy has recently begun to lose weight and is running some temperature.

W. E. Bruner, the subject of orbital tumors having been opened to discussion, presented a specimen of a tumor of the right orbit in a girl sixteen years old. The tumor had been of very slow growth and had been present for probably ten years. There was complete optic atrophy and blindness in the affected eye. The latter was more hyperopic than the normal eye, due to the flattening produced by the pressure of the tumor. The eye turned outward to the right and had only very slight motion in and upward. There was no involvement of the sinuses. There had been no pain. The mass was readily felt to the nasal side of the

orbit. The tumor was readily separated anteriorly, but was more firmly fixed posteriorly so that the eye had to be removed with the tumor. The latter was entirely encapsulated, the outer layer being quite dense; centrally there was a large area of hemorrhage. At the apex of the orbit the optic nerve was involved in the tumor mass. The tumor was apparently a fibroma. From the gross examination it was impossible to say whether it had originated from the optic nerve. The eye-ball itself showed no gross involvement.

Edward Lauder said that he had seen Doctor Quittner's case in November. The tumor was then very small, about the size of a hazelnut, and was apparently encapsulated. It was very friable and broke during removal. Within a week it had again reached its original size. It was shocking to see the size which the tumor had reached in the short time since he had last seen the patient.

S. H. Monson had seen the case early in December. At that time the mass seemed freely movable, the eye itself being apparently not involved; there was no pain. The tissue was friable and had a fatty appearance. The tumor began to reappear very shortly after its removal, but the bulk of the great growth which the tumor now shows has occurred within the past three or four weeks.

S. S. Quittner asked as to the operability of the tumor with subsequent X-ray treatment.

Edward Lauder, in reply, said that from his own experience he must consider such tumors inoperable, because of the great tendency to recurrence. Wood has recommended removal of such tumors, with subsequent X-ray treatment.

3, Report and Presentation of a Case of Congenital Cataract, by W. C. Tuckerman.

Presentation of a boy eight years old with bilateral congenital cataract. The family history is negative and there is no history of syphilis. There is one other child in the family, now three years old, who shows no abnormalities. Shortly after the birth of the child shown the parents noted that the left eye squinted. The right eye began to show change at about three years. Two years ago the vision of the right eye for distance was 20/120, of the left, 20/200; for near vision, that of each eye was 1/10. Vision is now about the same and visual acuity of both eyes is about the same. The cataract of the left eye appears to be posterior conical, of the right zonular. He felt that operation was the only procedure that offered hope for improvement.

Edward Lauder, in discussion, said that he had seen three cases of congenital cataract, two in one family. The first child of the latter family was normal; he had heard that a fourth child had been born to this family and that this also has cataract. In the third case seen, the child had complete opacity and at two years could not walk; it was apparently a degenerate.

W. E. Bruner had seen the fourth child of the family mentioned by Doctor Lauder; it was cataractous. He had seen one case in a mongolian idiot. During the past year he had seen seven cases of congenital cataract, in which eleven operations have been done. Operation has, in general, given good results. He agreed that operation offered the only hope in the case shown. One must not be disappointed if the vision is poor for some time after the operation. The pupil may be very clear and yet vision, even with glasses, may be poor. This is due probably to the undevelopment of the retina. After refraction the vision gradually improves. In his experience the most troublesome cases of congenital lens defects had been congenital dislocations of the lens.

H. H. Brelsford had had under his care a family in which congenital cataract occurred in three generations, in a child, in the latter's mother and two aunts, and in the grandmother and a sister of the latter.

L. K. Baker asked whether operation should be done if vision is good enough for ordinary school work and if the trouble seems to be stationary.

D. A. Prendergast said that Fuchs, of Vienna, recommends iridectomy in cases of the latter kind.

W. E. Bruner agreed that if vision is much better with the pupils dilated iridectomy may be indicated. In favor of early operation is that the cataract is preferably removed while still soft, rather than after it has hardened. Needling, linear incision and irrigation would seem to be the operation of choice when the cataract is still soft. Congenital cataract should preferably be operated when the child begins to walk, say at about one year of age.

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#### MEDICO-PHARMACEUTICAL SECTION

The eighth regular meeting of this Section was held at the Cleveland Medical Library, Friday, January 31, 1913, the Chairman, J. B. McGee, in the chair.

The program was as follows:

The Method of Compounding Chemical and Pharmaceutical Incompatibilities, by T. Bernard Tanner.

The pharmacist, in compounding prescriptions, must bear in mind not only chemical reactions but also solubilities. The physician should not be annoyed by being asked for permission to make slight changes which overcome any minor incompatibilities which may be present in a prescription. The proper overcoming of these defects is the function of the intelligent and well trained pharmacist. Incompatibility may be either chemical or physical and may occur in either liquid or solid combinations. Chemical incompatibility in liquids is that which results from chemical reaction and results in the decomposition of one or more of the elements concerned. This may be intentional upon the part of the prescriber, and good judgment is necessary upon the part of the pharmacist in determining this point. Physical or therapeutic incompatibility is the physical dissociation of the elements, not due to chemical action, but dependent upon relative solubilities. In this group of incompatibilities it is important for the pharmacist to know whether the substance thrown out is inert, so that its removal by filtration is justifiable, or whether it is such that its action is desired in the prescription. The latter occurs in the union of resinous or oily liquids with aqueous solutions; such prescriptions can usually be satisfactorily compounded by emulsifying with acacia, etc. Throwing down of inert substances occurs when fluid extracts are diluted with fluids other than those used in the preparation of the extract; in such cases filtration removes nothing that is essential; or acacia may be used to make a homogeneous mixture if it is desired to retain the precipitated substance in the finished preparation. Chemical incompatibilities in solid substances may produce insoluble compounds, liberate gases, cause alterations in color, or result in the formation of explosive compounds. In any given case the pharmacist should know enough to overcome difficulties with the least annoyance to the physician. (To be published in full.)

W. H. Tuckerman, in discussion, said that the paper impressed upon the doctor the inadvisability of "mixing drinks," of polypharmacy. The greater the number of compounds in a prescription, the greater the number of possible incompatibilities. The mistake of combining strychnin and bromid, which had been given as an example of chemical incompatibility, must be one that is frequently made. The physician is little interested in color changes which may result in his prescriptions; perhaps any difficulties which the pharmacist might meet in this respect might be overcome by the use of a label stating that a change in color may occur.

L. C. Hopp believed that the "mixing of drinks" in a prescription might be proper if they are properly mixed. The physician wants to use certain remedies in the combination that he prescribes; he has not the time to figure out all the possibilities and incompatibilities. For this he must trust the pharmacist; the latter must compound the prescription, not exactly as written, but in such a way as to carry out the intentions of the



physician. The preparation of complex and compound prescriptions is the especial field of the well trained pharmacist. In regard to color changes, he believed that the pharmacist should be permitted to add a little caramel, in order that a given mixture would always have the same color.

J. B. McGee recalled a death due to strychnin-bromid combination, all of the strychnin being thrown down and taken in the last dose. Because of the complexity of the newer synthetic compounds and of our lack of knowledge of their chemistry, he believed it best to use these as simply as possible and as much alone as possible.

F. J. Wood asked as to any incompatibility in a mixture containing bromid and digitalis. Some druggists to whom such prescriptions had been taken had told him that the mixture was incompatible.

L. C. Hopp believed that preparations of the glucosides, like infusion of digitalis, should be given as much alone as possible, because the glucosides are so easily split up.

T. Bernard Tanner, in closing, said that the supposed incompatibility in digitalis and bromid mixtures rested largely with the pharmacist. The material thrown down is inert and could readily be removed by filtration without interfering in any way with the efficacy of the preparation. In regard to the strychnin and bromid incompatibility, it must be remembered that nux vomica and bromid are not incompatible. It is only when a salt of strychnin is used that the latter is thrown out by the alkalies or alkaline earths. He agreed that the function of the pharmacist is to compound the prescription, not to question the physician's ideas in regard to polypharmacy; it is his business to know how to dispense the preparation without annoying the physician over minor points. For this reason physicians should direct their prescriptions to reliable and well trained pharmacists and should rely upon them completely. The suggestion of a special label calling attention to possible color changes was a good one.

The election of officers resulted as follows: Chairman, Torald Sollman; Secretary, T. Bernard Tanner (reelected).

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## CLINICAL AND PATHOLOGICAL SECTION

The ninety-first regular meeting of this Section was held at the Cleveland Medical Library, Friday, February 7, 1913, the Chairman, W. H. Merriam, in the chair.

W. G. Stern presented a case in which Abbott's method for the cure of lateral curvature of the spine had been used. In this method the deformity is overcorrected and kept so by a plaster cast. After removal of the latter the overcorrection is maintained for two or three months longer by means of a celluloid brace. After this is left off exercise and massage are employed.

W. E. Lower asked as to how the overcorrection is done, whether under anesthesia, and as to the amount of discomfort in the overcorrected position.

W. G. Stern, in reply, described the apparatus for bringing about the overcorrection and for overcoming the various curves. No anesthesia is necessary. The cast must be applied very quickly. A week later windows are cut into the cast and felt pads introduced to maintain the overcorrection. The latter produces no discomfort.

C. A. Hamann showed a tumor removed from a woman sixty years old. The patient had a large abdominal tumor, which was supposed to be an ovarian cyst. Upon the operating table, however, the mass was found to be in the upper abdomen and not connected with the pelvis. It proved to be a retroperitoneal lipoma, arising from the region of the kidney. Retroperitoneal lipomata are rare. In addition to the large mass, there were two or three smaller lipomata, which, like the large tumor, could be readily shelled out. He mentioned also another tumor recently removed, a chylous cyst of the mesentery eight inches in diameter.

W. E. Lower showed a malignant tumor of the cecum, probably a carcinoma. It was removed from a man forty-five years old, who had been bedridden and anemic for some time. Resection and lateral anastomosis were followed by rapid gain in weight and apparent recovery. Cecal carcinomata are interesting because of intestinal tumors they are least liable to recur. Another specimen, a smaller tumor of the sigmoid, was interesting because it illustrated the degree of stenosis of the lumen of the gut which might occur without symptoms of obstruction. Resection and an end to end anastomosis by invagination were followed by apparent recovery.

The regular program was as follows:

1, Washings from the Autopsy Table as a Possible Source of the Spread of Disease, by W. D. Fullerton.

The speaker had been struck by the lack of care in disinfecting the washings from autopsy tables before permitting them to run into the sewer. A questionnaire brought out the fact that this is the common practice in most hospitals in this country and abroad. Such material would seem to be a very great and active source of danger. The necessity for the disinfection of all autopsy washings was emphasized and methods of disinfection were described; of the latter heat is the best and cheapest.

2, Examination of the Pelvic Organs in Doubtful Cases through Vaginal Incision, by Hunter Robb.

In certain cases of pelvic inflammation bimanual examination does not reveal findings sufficient to warrant an abdominal operation. The speaker believed that it is justifiable to explore by means of a vaginal incision in these cases, in order that the necessary operation may be done or that the patient may be spared the expense and danger of an abdominal operation. Cases were reported in which this procedure had been used, bringing to light inflammatory conditions about the tubes and ovaries which required abdominal operation, the latter being followed by recovery. The procedure should be carried out only for good cause and under the strictest asepsis. The method appeared to be of distinct advantage in determining whether an abdominal operation is necessary. (To be published in full.)

W. H. Weir, in discussion, agreed that the method is of great value in determining exact conditions. It permits not only of diagnosis, but also of a considerable range of operative procedures, like the breaking up of adhesions, the removal of tubes and ovaries, etc. Bimanual examination often gives an insufficient idea of the exact nature of conditions which may be present.

3, Some Experiences in the Surgical Treatment of Ulcer and Carcinoma of the Gastrointestinal Tract, by C. A. Hamann.

The more the surgeon sees of gastric and duodenal ulcer the less confident is he of making a diagnosis before operation, unless the symptoms are perfectly typical. In the majority of cases hemorrhage from ulcer tends to cease spontaneously. Usually the single large hemorrhage from the stomach or duodenum is not associated with an ulcer which can be found at operation or autopsy; in many such cases the cause cannot be found. Recurrence of the symptoms, especially hemorrhage, had occurred in two of the speaker's cases of gastric ulcer after gastroenterostomy; in these pylorotomy finally relieved the symptoms. In one case of gastric ulcer operated upon, death occurred some days after excision of an ulcer; autopsy showed a second ulcer which had perforated. Moderate symptoms of perforation after symptoms of gastric ulcer may be due to a gradual or subacute perforation and walling off of the lesion by localized peritonitis. In every case in which an ulcer of the stomach is found at operation, the ulcer should be excised, since so large a proportion of gastric carcinomata are undoubtedly preceded by ulcer. Some of the best results obtained in abdominal surgery follow gastroenterostomy for cicatricial contraction of the pylorus.

Gastric Carcinoma: In more and more cases do we find an apparent history of preceding ulcer. The peculiar facies of patients with gastric

carcinoma is often helpful in diagnosis. The size of the tumor is no indication of its removability; large tumors may be freely moveable and may not have given rise to metastases; such should be removed. Diffuse carcinoma may produce such marked alteration that not even enough good tissue is left for a gastroenterostomy. Perforation may be the first symptom of carcinoma in a certain percentage of cases. In a few cases the diagnosis has been aided by the finding of a button-like mass at the umbilicus; this is due to a secondary growth which has come probably by way of the tissues of the round ligament of the liver; similarly, secondary masses may be felt through the anterior wall of the rectum. Small malignant tumors of the testis may lead to large secondary tumors of the abdomen, which may be confused with gastric carcinoma. Ulcers with chronic perigastritis may simulate carcinoma, even after the abdomen is opened; the condition may appear inoperable, but gastroenterostomy may be followed by relief and cure. The posterior low route gastroenterostomy is to be preferred. Pylorectomy and gastrectomy seem to be better borne and with less shock than we are generally led to believe.

**Carcinoma of the Intestine:** This occurs much more frequently in the large intestine. That of the cecum is the most favorable, because it is most easily and most completely removed. In elderly people with symptoms of chronic appendicitis, the possibility of ileocecal carcinoma or tuberculosis must be borne in mind. In ileocecal tumor or tuberculosis the gut should be widely resected, the ends closed and lateral anastomosis done. Cancer of the splenic flexure of the colon is difficult to recognize early. The first evidence of its presence may be acute obstruction. Tumors in this region are difficult to remove and we must resort to short-circuiting operations rather than resection. In removal of carcinoma of the transverse colon, end to end anastomosis is permissible; union usually results, although there may be a temporary fecal fistula in some cases. Inflammatory thickening of the large intestine may very closely simulate tumor. In carcinoma of the rectum the speaker said that he no longer removes the sacrum, since sufficient bowel can be brought down without this procedure. He had never been able to get perfect sphincter control in these cases. Better results have been obtained by the combined operation, the rectum being removed and the anus closed off, and an artificial iliac anus being made.

F. C. Herrick, in discussion, said that the diagnosis of gastric and duodenal ulcer leaves much yet to be learned. Neuroses may give rise to many of the symptoms of ulcer. Definite knowledge will not be gained until close following of symptoms is succeeded by operation and thorough examination of the stomach in groups of cases. He asked whether the speaker had ever seen a gastric ulcer without peritoneal changes which permitted its recognition. Endoscopic examination of the stomach seems to give valuable aid. Diaphanoscopy has also been recommended by some operators. It seems to be practically decided that one or two severe hemorrhages never demand operation; only after repeated hemorrhage with subsequent anemia is there hope of affording relief.

C. D. Williams recalled a case in which the first symptoms were those of acute appendicitis. The appendix was removed. Autopsy showed a perforated gastric ulcer.

W. E. Lower mentioned a case of gastric hemorrhage, in which at operation the stomach showed nothing; there were numerous stones in the kidney. These were removed and there was no recurrence of the hemorrhage; whether there was any relation between the hemorrhage and the stones in the kidney could not be decided. Duodenal ulcer, if it exists, must be demonstrable; if present, plication and short loop anastomosis give brilliant results. He agreed that fairly frequently inflammatory conditions may simulate tumor, and for this reason one should not be satisfied with the feeling that any given tumor is inoperable; an exploratory operation is always advisable. In inoperable tumors, anastomosis is quite worth while and should be done because of the great resulting relief.

C. A. Hamann, in closing, said that chronic gastric ulcers can usually be demonstrated externally; he had, however, seen definite ulcers which had produced no change in the peritoneum. He recalled a case in which the symptoms were quite typical of duodenal ulcer; at operation the ulcer was found in the transverse colon, at a point where the latter had become adherent to the duodenum.

#### COUNCIL MEETING

The regular meeting of the Council was held Wednesday, January 8, 1913, the President, H. L. Sanford, in the chair.

H. Lupeson was elected to active membership, and L. A. Wolf, of Ravenna, Ohio, to nonresident membership. Harold Newton Cole and David P. Bowden were transferred to active membership. Resignations of the following were accepted: Charles G. Foote, Lulu A. Peterson, W. S. James, H. L. Hall, of Amherst, Ohio, and Attorney James H. Griswold.

The following were appointed chairmen of standing committees: C. E. Ford, Legislative Committee; R. G. Perkins, Public Health Committee; A. S. Storey, Civic Committee; F. T. Kopfstein, Membership Committee; Richard Dexter, Program Committee. R. H. Bishop was appointed a member of the State Committee on Public Policy and Legislation.

The President was appointed a committee of one to make arrangements with the Cleveland Medical Library for the meetings of the Academy. The Secretary was instructed to make arrangements with Mr. Harding for the operation of the stereopticon, and with the *Cleveland Medical Journal* for the distribution of the journal to members of the Academy on the basis of the preceding year.

The Secretary was instructed to call to the attention of members of the Council the provisions of the constitution in regard to absences from meetings of the Council.

A communication from L. K. Baker regarding the publishing of a classified list of Academy members according to their specialties was referred to the Civic Committee.

A communication was read from the Advertising Club, relating to their endeavor to do away with fraudulent advertising in newspapers. The Secretary was instructed to communicate with the American Medical Association asking that the Association forward to the Advertising Club such data as they may have bearing upon the matter.

#### Book Reviews

The Practical Medicine Series. Vol. VIII, Series 1912: *Materia Medica and Therapeutics, Preventive Medicine, Climatology*. Edited by George F. Butler, Ph. G., A. M., M. D.; Henry B. Favill, A. B., M. D.; Norman Bridge, A. M., M. D. Cloth, 350 pages, \$1.25. Price of the ten volumes, \$10.00. The Year Book Publishers, 180 North Dearborn Street, Chicago.

This, the eighth volume of the Practical Medicine Series for 1912, presents quite concisely the advance, during the past year, of the subjects of which it treats. The selections cover quite completely the field noted in the title, the opening subdivision of two hundred pages dealing with materia medica and therapeutics, all the newer agents of value being considered. The next one hundred pages are devoted to preventive medicine, while the closing chapter of about forty pages epitomizes climatology. All the important facts of interest and value of recent date are here noted, and the little work will be found of practical aid to all wishing to keep in touch with current progress.

J. B. M.

Symptoms and Their Interpretation. By James Mackenzie, M. D., LL.D., Aber. & Edin., Lecturer on Cardiac Research, London Hospital; Physician to the Mt. Vernon Hospital; Consulting Physician to the Vic-

toria Hospital, Burnley. 2nd edition. Cloth, pp. xx and 304, \$3.00 net. Paul B. Hoeber, 69 East 59th Street, New York, 1912.

In this book the author calls attention to the valuable aid in diagnosis afforded by the careful study of pain and the nervous phenomena that accompany it. The author calls attention to the neglect of study of the more obvious functions of diseased viscera. The reader can not help but admire the painstaking observations of Doctor Mackenzie, not only in cardiac diseases, where his work is well known, but in other fields of medicine, surgery and obstetrics as well. It surely is an inspiration to reflect on how much of real value he has contributed to the science of medicine even though engaged in a very onerous general practice. Nothing further need be said as to the value of this book than to mention the fact that the first edition has been translated into other languages. J. P.

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E. Merck's Annual Report of Recent Advances in Pharmaceutical Chemistry and Therapeutics. Volume XXV. Paper, 508 pages. E. Merck, Chemical Works, Darmstadt, 1912.

This is an encyclopedic collection of abstracts of contributions to pharmaceutical chemistry and pharmacotherapy issued annually by the firm of Merck and Company. In so far as these abstracts bring together, in compact form, brief statements of the results of the investigators, they fill a rather extensive need in medical literature. On the other hand, a number of the abstracts contain the personal comments of Mr. Merck. The comments, perhaps more properly called endorsements, are mainly of products of his own manufacture and are altogether too optimistic. Reference is made to the lengthy chapter on "glycerophosphates," in which the claims made for therapeutic possibilities are beyond the generally accepted facts concerning these products. Also, the reported effects of "fibrolysin" on scar tissue appear scarcely warranted. This phase of the "Annual Report" displays a very unhealthy tendency. It certainly falls short of fulfilling completely the original intentions of its author.

P. J. H.

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Arteriosclerosis: Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis and Treatment. With a Special Chapter on Blood Pressure. By Louis M. Warfield, A. B., M. D., Assistant Superintendent and Resident Physician to Milwaukee County Hospital, Assistant Professor of Medicine, Wisconsin College of Physicians and Surgeons, Milwaukee, Wisconsin, etc. With an introduction by W. S. Thayer, M. D., Professor of Clinical Medicine, Johns Hopkins University. Cloth, 220 pages, 28 illustrations, \$2.50. C. V. Mosby Company, St. Louis, 1912.

So great is the interest of physicians and the general public in arteriosclerosis that any book that deals with this subject will be welcomed. In this second edition the author has endeavored to give to the general practitioner the newest results of experimental research, and the prevailing opinions of the leading clinicians. Following an interesting introduction of Professor Thayer, the author discusses arteriosclerosis from the standpoint of pathology, the physiology of the circulation, etiology, the physical examination of the heart and arteries, symptoms and physical signs, diagnosis, prognosis and treatment. A bibliography which includes the most important writings on arteriosclerosis is appended. One disappointing feature in the book is the scant consideration which is given to arteriosclerosis in the young. The book as a whole covers in a readable though not exhaustive manner the subject. The treatment described is rational. An interesting and instructive chapter is given on the relation of arteriosclerosis to life insurance examination. No doubt this edition will receive the same kindly reception as was given the first edition. J. P.

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The Practical Medicine Series. Vol. IX, Series 1912: Skin and Venereal Diseases. Miscellaneous Topics. Edited by W. L. Baum, M. D., and

Harold N. Moyer, M. D. Cloth, 237 pages, 14 plates, 2 figures, \$1.25. Price of the series of ten volumes, \$10.00. The Year Book Publishers, 180 North Dearborn Street, Chicago.

This small volume of some two hundred pages contains some interesting reading on the year's advances in the diagnosis and treatment of diseases of the skin and syphilis. There is also a section devoted to genito-urinary diseases and in the miscellaneous topics are several articles on the latest views as to medical education, insurance and contract practice, and eugenics. To be sure, in a volume prepared so hastily as this one must be, there are numerous typographical and grammatical errors but it has several good plates, the reviews are as a rule concise and the book as a whole is to be recommended to the busy practitioner. H. N. C.

Diet and Hygiene in Diseases of the Skin. By L. Duncan Bulkley, A. M., M. D., Physician to the New York Skin and Cancer Hospital; Consulting Physician of the New York Hospital; Consulting Dermatologist to Randall's Island Hospital, etc. Cloth, octavo, pp. xiii and 194; \$2.00 net. Paul B. Hoeber, New York, 1913.

For several decades the diet has been one of the most discussed questions in dermatology. On the one hand we have the French school, who believe that very many of the skin diseases have their origin in, or at least are powerfully influenced by, disturbances in the digestive functions of the alimentary tract. The German school, on the other side, take the opposite view and believe that it makes little difference what the patient eats or does not eat. Here in America we have exponents of both sides of the question and Doctor Bulkley is probably the best known of those who lays great stress on diet. The book consists of six lectures delivered at the New York Skin and Cancer Hospital and an appendix made up of different diets, menus, etc. To read Doctor Bulkley's book one would be tempted to believe that the "cureall" for some diseases of the skin was now at hand and if all dermatologists had his success, e. g., with his meat free diet in psoriasis, this would be literally true. There must be prophets and necessarily extremists in all specialities; only by so doing can they achieve success and attract attention to their views, so probably after all Doctor Bulkley's work has served a good purpose. The book is well written, the printer has done his part well and to those who are interested perhaps it may be worth their while to delve further. H. N. C.

### Acknowledgments

Medical Men and the Law. A Modern Treatise on the Legal Rights, Duties and Liabilities of Physicians and Surgeons. By Hugh Emmett Culbertson, of the Ohio and New York Bars. Cloth, octavo, 325 pages, \$3.00 net. Lea & Febiger, Philadelphia and New York, 1913.

The Labyrinth. An Aid to the Study of Inflammations of the Internal Ear. By Alfred Braun, M. D., New York, and Isidore Friesner, New York. Cloth, 250 pages, with 54 figures in the text and 34 halftones on 32 plates. Rebman Company, New York, 1913.

Golden Rules of Surgery. Vol. I of the Golden Rule Series. Especially intended for students, general practitioners, and beginners in surgery. By Augustus Charles Bernays, A. M., M. D. (Heidelberg), M. R. C. S. (Eng.). Second edition, revised and rewritten by William Thomas Coughlin, M. D., Assistant Professor of Surgery, Chief of Clinic, St. Louis University Medical School, St. Louis, Mo. Cloth, 281 pages, \$2.25. C. V. Mosby Company, St. Louis, 1913.

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Vol. I, No. VI (December, 1912). Octavo of 153 pages, illustrated. Published bimonthly. Price per year: Paper, \$8.00; cloth, \$12.00. W. B. Saunders Company, Philadelphia and New York.

Psychanalysis: Its Theories and Practical Application. By A. A. Brill, Ph. B., M. D., Chief of the Neurological Department of the Bronx Hospital and Dispensary; Clinical Assistant in Psychiatry and Neurology at Columbia University Medical School. Cloth, octavo, 337 pages, \$3.00 net. W. B. Saunders Company, Philadelphia and London, 1912.

Principles and Practice of Obstetrics. By Joseph B. DeLee, A. M., M. D., Professor of Obstetrics at the Northwestern University Medical School. Large octavo of 1060 pages, with 913 illustrations, 150 of them in colors. Cloth, \$8.00 net; half morocco, \$9.50. W. B. Saunders Company, Philadelphia and London, 1913.

Handbook of Diseases of the Rectum. By Louis J. Hirschman, M. D., President of the American Proctologic Society, Lecturer on Rectal Surgery and Clinical Professor of Proctology, Detroit College of Medicine. Second edition, revised and rewritten. Cloth, royal octavo, 338 pages, 172 illustrations including 4 colored plates; \$4.00. C. V. Mosby Company, St. Louis, 1913.

Study of Man in Connection with Establishing Laboratories to Investigate Criminal, Pauper, and Defective Classes. By Arthur MacDonald, Washington.

The Prevalance and Geographic Distribution of Pellagra in the United States. By C. H. Lavinder, Surgeon, U. S. P. H. Service. Reprint from Public Health Reports, No. 106. Government Printing Office, Washington, 1913.

How the United States Public Health Service Can Help in the Eradication of Preventable Diseases in Kentucky. By Joseph Goldberger, Passed Assistant Surgeon, U. S. P. H. Service. Reprint from Public Health Reports, No. 107. Government Printing Office, Washington, 1913.

Malarial Fevers? Prevalance and Geographic Distribution in Alabama. By R. H. von Ezdorf, Surgeon, U. S. P. H. Service. Reprint from Public Health Reports, No. 108. Government Printing Office, Washington, 1913.

Report of the Medical Director of the Hot Springs Reservation to the Secretary of the Interior. Government Printing Office, Washington, 1912.

Report of the Special Committee on the Matter and Methods of Sex Education. Presented before the Subsection on Sex Hygiene of the XV International Congress on Hygiene and Demography. The American Federation for Sex Hygiene, New York, December, 1912.

Proceedings of the 6th Annual Meeting of the Association of Life Insurance Presidents. New York, December 5 and 6, 1912.

Need for Better Vital Statistics. Report of Health Committee, Association of Life Insurance Presidents.

The Influence of Vital Statistics on Longevity. By Dr. Watson S. Rankin, Secretary North Carolina Board of Health. Address delivered at the 6th Annual Meeting of the Association of Life Insurance Presidents, New York, December 5, 1912.

Spinal Analgesia—Development and Present Status of the Method. With brief summary of personal experience in 1,065 cases. By William Seaman Bainbridge, Sc. D., M. D., New York. Reprint from Jour. A. M. A., 1912, LIX, 1855.

Le Glante Carotidienne de Luschka. Possède-t-elle une Sécrétion Interne Propre? Par le docteur C. Frugoni, Privatdocent de Pathologie Interne et Chef de Clinique Médicale a l'Ecole Supérieure de Médecine de Florence. Extrait de la Semaine Médicale, Octobre, 1912.

Arteriosclerosi Gastro-Intestinale. Per Cesare Frugoni, Aiuto e Docente, Firenze. Estratto dalla Rivista Critica di Clinica Medica, XIV, 1913.

Studi sulla ghiandola carotidea di Luschka. Per il prof. C. Frugoni, aiuto della Clinica medica generale (Prof. Grocco). Estratto dal "Polinclinico," XX, 1913.

### Medical News

**The United States Civil Service Commission** announces an open competitive examination for assistant in experimental therapeutics, Philippine Service, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in the position of research assistant in experimental therapeutics in the Bureau of Science, in Manila, Philippine Islands, at a salary of \$2,000 a year, and vacancies as they may occur requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. This position offers to the ambitious and capable physician a wide field for experimental therapeutics work. The Bureau of Science possesses one of the largest and most favorably known research laboratories in existence and is in the immediate vicinity of the Philippine General Hospital, which is probably the best institution of its kind in the Eastern Hemisphere. It will not be necessary for applicants to appear at any place for examination. Their eligibility will be determined upon the evidence furnished in connection with application and examination Form B. I. A. 2, concerning their training and the work which they have accomplished. Applicants must be graduates in medicine, and in addition must show at least one year's postgraduate experience in conducting laboratory research work in experimental therapeutics, or, as equivalent to the year's work, they may submit copies of publications prepared by them, evidencing their ability to carry on original experimental therapeutics work. A person is desired who is especially qualified in research, and it is stated that, for one who is satisfactory, the prospects of promotion are excellent. Statements as to training, experience, and fitness are accepted subject to verification.

Applicants must have reached their eighteenth but not their fortieth birthday on the date of the examination. Persons who comply with the requirements and desire this examination should at once apply for Form B. I. A. 2 to the United States Civil Service Commission, Washington, D. C.; the secretary of the board of examiners, post office, Boston, Mass., Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle Wash. San Francisco Cal.; customhouse, New York, N. Y.; New Orleans, La., Honolulu, Hawaii; old customhouse, St. Louis, Mo.; or to the chairman of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed, including the medical certificate, and filed with the Commission at Washington prior to the hour of closing business on March 10, 1913.

**A Society for the Advancement of Clinical Study** has recently been organized in New York City, the purpose of which is to maintain a bureau of information which will furnish to resident and visiting physicians definite information regarding the clinical facilities of the hospitals and laboratories of the greater city. For this purpose a bulletin board has been installed at the Academy of Medicine, 19 West 43rd Street, in charge of a special clerk who will be on duty between the hours of nine and six to answer all telephone inquiries (Telephone 974 Bryant). The bulletin board will consist of two sections, on one of which will be posted month by month, the regular clinics, medical and surgical, and also laboratory demonstrations, all of which are held at stated hours. The second section will include full announcements of daily operations and demonstrations of cases both medical and surgical, which as far as possible will be announced on the day preceding their performance. It is believed that these facilities will afford physicians who are interested in observing particular operations and operators or clinicians, an opportunity to obtain the desired end with the least trouble. It is hoped that by this means the large and unexcelled clinical facilities of New York City will be made more accessible to those who may desire to make use of them.

**The Ninth Annual Conference** of the American Medical Association on Medical Education, Medical Legislation and Public Health was held at



Chicago, February 24 and 25. The program was as follows: "Hospitals and Their Relationship to Clinical and Postgraduate Medical Teaching," by H. D. Arnold, Dean of the Harvard University Graduate School of Medicine, Boston; "The European Side of Medical Education," by Abram Flexner of the General Education Board, New York; "Advantages to the Public and to the Medical Profession from a Single Federation of State Licensing Boards," by Herbert Harlan, President of the Maryland State Board of Medical Examiners, Baltimore; "The Medical Profession and the Public," by G. H. Simmons, Editor of the *Journal of the American Medical Association*, Chicago; "The Medical Profession and Medical Education," by J. A. Witherspoon, President-Elect of the American Medical Association, Nashville; "Progress in Vital Statistics Legislation in the United States," by Cressy L. Wilbur, Washington; "State Police Power and the Practice of Medicine," by A. C. Umbreit, Attorney for the Wisconsin State Board of Medical Examiners; "Medical School Supervision," by E. B. Hoag, St. Paul; "Control of Ophthalmia Neonatorum," by M. W. Richardson, Secretary of the Massachusetts State Board of Health, Boston; "Municipal Regulation of the Milk Supply," by E. O. Jordan, University of Chicago; "Antivivisection Agitation and the Forces Behind It," by W. B. Cannon, Harvard University, Boston; "Forty-three Years of Medical Legislation," by F. R. Green, Chicago.

**W. B. Saunders Company**, of Philadelphia and New York, announce the early publication of a work on the history of medicine by Fielding H. Garrison, Principal Assistant Librarian, Surgeon-General's Office and Editor of the *Index Medicus*.

The Department of Health of New York City has discontinued the free administration of diphtheria antitoxin and the performance of intubation at the homes of patients; patients requiring such treatment at the hands of the department's physicians must be removed to one of the hospitals of the department. Antitoxin may still be obtained free of charge by physicians.

**Alvin H. Doty**, formerly health officer of the port of New York, has been made medical director of the employes' benefit fund committee of the American Telephone and Telegraph Co., the Western Union Telegraph Co., and the Western Electric Co.

The Northern Tri-State Medical Association met in Toledo, Jan. 10. The program was as follows: "Errors in Diagnosis," by J. C. Fleming, of Elkhart; "Mastoiditis from the Viewpoint of the Family Physician," by E. J. Bernstein, of Kalamazoo; "The Form and Microscopic Structure of the Kidney Tubule," by G. Carl Huber, of the University of Michigan; "X-Ray Manifestations," by C. E. Elliott, of Chicago; "Gynecology and Nervousness," by J. H. Carstens, of Detroit; "Ductless Glands and the Nervous System," by D. Hecht, of Chicago.

The Union Medical Association of the sixth councilor district met at Akron, Feb. 11, for the following program: "Omphalocele," by C. D. Hauser, of Youngstown; "Amenorrhea in College Women," by Anna B. Yader, of Smithville; "The Early Diagnosis of Pulmonary Tuberculosis by Means of the Roentgen Ray," by J. P. DeWitt, Canton; "The Immediate and Early Treatment of Eye Injuries," by Edward Lauder, Cleveland; "The Paranoiac and his Relation to Society," by W. W. Leonard, of Akron; "Differentiation of Functional from Organic Nervous Diseases," by W. B. Laffer, of Cleveland; "Every Man's Big Fortune," by Dan Millikin, of Hamilton.

Free Distribution of Diphtheria Antitoxin by the state is provided for by a bill introduced in the legislature. The passage of this measure would save Cleveland approximately \$15,000 per year.

**Compulsory School Medical Inspection.**—A bill introduced by Dr. W. S. King, of Ashtabula, a member of the state legislature, would make compulsory state-wide medical and dental inspection of all school children at least once a year, except in those cases where certificates are brought from the family physician or dentist.

**State Legislation.**—Other measures introduced in the legislature are our old friend the optometry bill, and a new, but equally charming friend in the way of a bill proposing the creation of a board of "naturopathic physicians." Resolutions appropriating \$3,000 per year for two years for a preliminary survey of occupational diseases by the State Board of Health are before the house. A bill providing for the sterilization of defectives has been introduced. House Bill 13 provides for the preservation of the health of factory employes, House Bill 27 provides what persons may enter into a marriage contract, House Bill 37 provides for the expenses of persons quarantined on account of contagious diseases, House Bill 51 prohibits advertising to cure sexual diseases, House Bill 59 prohibits the use of opium, House Bill 71 regulates the sale of hypodermic syringes, House Bill 85 regulates the conduct of tenement houses, and House Bill 90 provides state care for persons addicted to the use of morphin, cocain, etc. House Bill 105 provides for a state board of registration of nurses, and House Bill 109 provides for the regulation of the labeling of drugs.

**State Board of Health** resolutions place such restrictions about the use of common drinking cups and common towels in schools and in public conveyances as practically to prohibit their use. Ophthalmia neonatorum has been made a reportable disease.

**Contagious Diseases.**—During the past month schools have been closed at Cedarville and Columbus Grove because of diphtheria; at Upper Sandusky and Prairie Depot because of scarlet fever; and at Walbridge because of smallpox.

**County Medical Society Meetings.**—Darke county, at Greenville, Jan. 9; T. R. Brown, bacteriologist of the State Board of Health, read a paper on "Epidemic Sore Throat."—Portage county, at Ravenna, Jan. 9. The following officers were elected: President, B. H. Jacob, of Kent; Vice-President, C. A. Woolf, of Ravenna; Treasurer, E. J. Widdecombe, of Kent; Secretary, C. O. Jaster, of Ravenna.—Montgomery county, at Dayton, Jan. 17; the program was as follows: "Modern Hospital Equipment," by E. R. Crew; "The Relationship of the Physician to the Hospital," by Cecil George; "What the Hospitals Might Do for the Profession," by C. H. Tate; "European Hospitals," by H. T. Summersgill, of Cincinnati.—Allen county, at Lima, Jan. 21; Shelby Mumaugh read a paper on "Medical Economics."—Columbiana county, at Salem, Jan. 21. The following officers were elected: President, Harry Bookwalter, of Columbiana; Vice-President, G. P. Ikirt, of East Liverpool; Secretary-Treasurer, W. E. Morris, of Lisbon.—Fairfield county, at Lancaster, Jan. 21; H. M. Hazelton read a paper on "Conservation of Child Life."—Stark county, at Canton, Jan. 21, elected the following officers: President, A. J. Hill; Secretary-Treasurer, C. A. Lamont; Corresponding Secretary, G. C. Goudy.—Seneca county, at Tiffin, Jan. 24; B. R. Miller presented a paper on "The History, Diagnosis and Treatment of Syphilis"—Wyandot county, at Sandusky, Jan. 30. Officers were elected as follows: President, V. K. Knapp; Vice-President, B. A. Moloney; Secretary-Treasurer, Frederick Kernan.—Richland county at Mansfield, Jan. 30; H. H. Drysdale, of Cleveland, presented an address on "Some Phases of Nervous Ill-Health and Their Psychological Control."—Summit county, at Akron, Feb. 4; the program was as follows: "Extrauterine Pregnancy," by H. H. Jacobs; "Examination of the Eye," by W. D. Wise.—Athens county, at Athens, Feb. 4; Prof. W. F. Mercer read a paper on "Eugenics."—Wash-

ington county at Marietta, Feb. 4.—Hancock county, at Findlay, Feb. 6; R. W. Bunting, of the University of Michigan, read a paper on "A Vision of the Future of the Dentist and Physician in Their Relation to Each Other and Their Duties to the Public."—Delaware county, at Delaware, Feb. 7.—Montgomery county, at Dayton, Feb. 7; the program was as follows: "The Treatment of Pneumonia," by W. S. Smith; "Surgical Treatment of Empyema Following Pneumonia," by Geo. Goodhue.—Darke county, at Greenville, Feb. 13; the following program was presented: "Further Report of Poliomyelitis," by Chas. Baker, of Palestine; "Intestinal Ptosis Producing Intestinal Stasis from the Orthopedic Viewpoint," by Robt. Carothers, of Cincinnati.

**Ill and Injured.**—C. B. Weedman, of New London, sustained a fracture of the arm when forced by fire to jump from a second story window.

**Removals.**—D. H. Bowman, from Lancaster to Roseville.—D. S. Olmstead, from Millersburg to Walnutcreek.—C. B. Meuser, from Galion to Ashland

**Personal**—J. C. Digman, of Wellington, has gone south for the winter because of ill-health.—J. H. Riley, of Celina, has been appointed a member of the pension board.—J. M. Hussey, for twenty-two years a physician at Sidney, will be superintendent of the new state hospital for the criminal insane at Lima.—A verdict for the defendant was rendered in a suit brought against R. W. Sharp, of Buckland, for alleged malpractice.—S. B. Hiner has been reelected president of the Lima Hospital Society.

**An Academy of Medicine for Women** has been organized at Cincinnati with the following officers: President, Nora Crotty; Vice-President, Ella G. Hunt; Secretary, Margaret H. Rockhill; Treasurer, Edith Smith.

**Bethesda Hospital, of Zanesville,** is to receive one-third of the residuary estate of Mrs. Angie P. Herdman; the estimated value of the estate is \$100,000

**The Board of Health of Cleveland,** to detect and control epidemic streptococcus sore throat, has made tonsillitis reportable.

**The Alumni Association of the Lakeside Hospital, Cleveland,** elected the following officers at the annual meeting held January 28: President, R. H. Birge, of Cleveland; Vice-President, C. S. Hoover, of Alliance; Secretary-Treasurer, W. D. Rogers, of Cleveland; Trustee, J. R. McDowell of Zanesville.

**W. T. Howard** has resigned as city bacteriologist of Cleveland. R. G. Perkins, Professor of Hygiene and Preventive Medicine in Western Reserve University, has been appointed in his stead.

**Illegal Practice.**—A. T. Novy, of Cleveland, fined \$300 for practicing medicine without a license, has been granted a new trial.—John W. Tippie, of Columbus, sentenced in October to a year in the penitentiary for alleged malpractice, has had the judgment reversed and has been discharged.—G. C. Merritt and H. I. Linert, of Cleveland, arrested in the recent crusade of the post-office department, plead guilty; the former was sentenced to one year in the federal prison at Leavenworth, Kansas, and the sentence was suspended; the latter was sentenced to ninety days' imprisonment in the Stark county jail at Canton.—The State Medical Board has caused the arrest of Joseph N. Smith, of Cincinnati, charged with practicing medicine without a license, and of Katherine Merrell, of Columbus, for alleged performance of a criminal abortion.

## Deaths

**Artemesia Brumback Winter**, Physio-Medical Institute, Cincinnati, 1883; died at her home in Newark, January 10, aged 67.

**Albert Clarence Shaw**, Medical College of Ohio, Cincinnati, 1900; Rush Medical College, 1908; died at his home in Eaton, January 12, from tuberculosis, aged 45.

**William Esprey Strofe**, Cincinnati College of Medicine and Surgery, 1892, of Norwood; died January 12, aged 40.

**Charles Rollin Austin**, Medical College of Ohio, Cincinnati, 1894; postmaster of Byesville; died January 13, aged 41, drowned as the result of a fall from a bridge.

**John Reddish**, Starling Medical College, 1863; of Springfield, retired; died January 14, aged 85, of senile debility.

**John V. Lewis**, Eclectic Medical Institute, Cincinnati, 1870; of Alliance; long prominent in local politics; died January 16, aged 75, of meningitis.

**John H. Molony**, Eclectic Medical Institute, Cincinnati, 1869; at one time township physician; died at his home in Symmes Corners, January 16, from cerebral hemorrhage, aged 71.

**Wade Allison Lewis**, Western Reserve University, 1904; of Amherst; died January 17, aged 30, of acute congestion of the lungs following an attack of whooping cough.

**Newton P. Hunter**, Eclectic Medical Institute, Cincinnati, 1863; of North Lewisburg; a veteran of the Civil War; died suddenly January 20, aged 66.

**Berthold L. Lewin**, University of Bonn, 1883; of Cleveland; died January 23, aged 53, supposedly from an overdose of morphin.

**William Patty**, Eclectic Medical Institute, Cincinnati, 1866; a retired physician of Greenville, died January 23, aged 86.

**E. S. Berwald**, University of Leipsig, 1869; of Cleveland, where he had practiced for forty years; died February 1, aged 73.

**Maria G. Pontius**, Columbus Medical College, 1883; of Canton; died February 10, aged 56.

**Samuel H. Sturgeon**, Medical College of Ohio, Cincinnati, 1873; of Akron; died February 11, aged 64, of septicemia.

**William Benedict Bassell**, Washington University, St. Louis, 1897; physician to the State Penitentiary, Columbus; a veteran of the Spanish-American War; died suddenly in Lawrence Hospital, Columbus, from nervous breakdown, aged 36.

# The Cleveland Medical Journal

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VOL. XII

MARCH, 1913

NO. 3

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## When Man Had a Hole in His Humerus

By F. D. SNYDER, M. D., F. R. G. S., Ashtabula, Ohio

The phenomena of the universe, brought within the range of human understanding and preserved in memory or writing, constitute knowledge; and systematic search for knowledge, on the basis of the highest standards of learning, is science. This, its application being of the utmost utility, constitutes one of the most important functions of mankind. A branch of science is a portion of systematic research of any given subject. Thus anthropology is a science that has to deal with the human race, or, in more detail, one might say that it is the natural history of mankind, as a whole or in part.

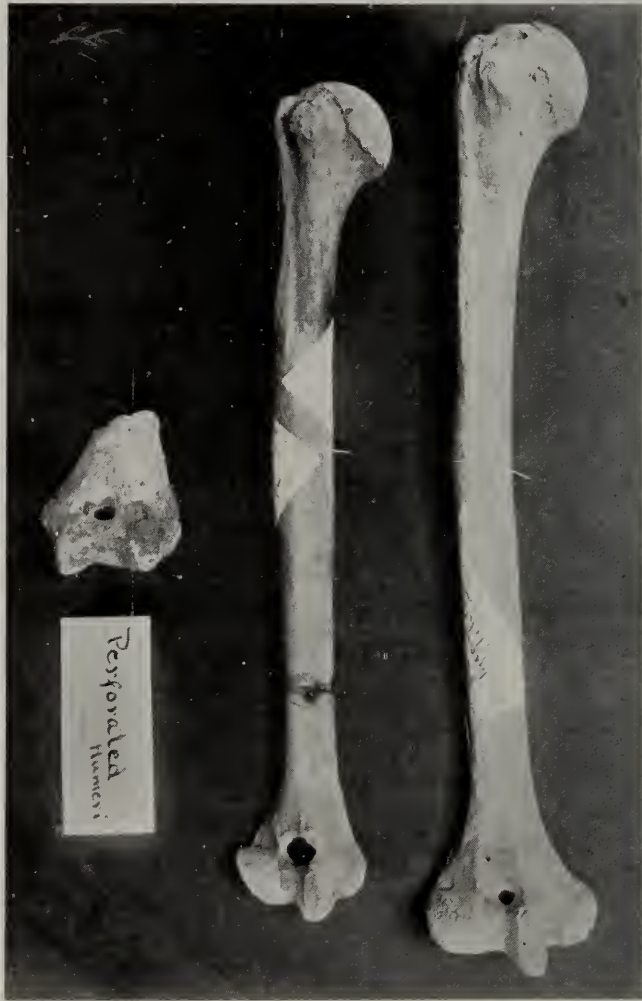
Anthropology, therefore, is the science of structural, functional and cultural differences in mankind in its epochs and its groups. It goes back to man's beginning, and by so doing must necessarily date back to prehistoric times.

The chief aim of anthropology is the study of general anatomy, which must necessarily include biology, in order to trace the functional relations of different species of living beings to one another, and search for the causes and processes of organic evolution.

The name prehistoric has been given to the vast period about which we have no written records, it lies outside of the horizon of history as we define the latter.

That there once lived a race of people who had certain peculiarities that distinguish their skeletons from those of normal man of today, has long been known by anthropologists. One of these characteristics, illustrated by the accompanying cut, is a perfect hole in the humerus, giving what is known to scientists as the "perforated humerus." This hole in the lower portion of the bone in the arm is not found in man of today, but the humerus now has a slight depression, showing where the hole has been entirely obliterated by the process of evolution.

The perforation to be found in the humerus of ancient man is not an uncommon thing. Many such specimens have been found, and the report of the Smithsonian Institution for 1875 gives a short description of them. Those that the illustration was made from were found by me in Ashtabula county, Ohio, where I found several other good specimens, several of which I have in my collection.



Perforated Humeri. From the collection of Doctor Snyder. Exhumed with five other skeletons in Ashtabula county, Ohio.

From a medical and surgical standpoint this peculiarity of ancient man should be of considerable interest, for in the skeletons from which these specimens come one finds also a certain peculiarity of the skull, and the flattened tibia is usually present in a more or less marked degree.

## Effects of Aortic Compression on the Circulation

By TORALD SOLLMANN, M. D., and J. D. PILCHER, M. D., Cleveland  
(From the Pharmacological Laboratory of Western Reserve University.)

Occlusion of the aorta introduces an enormous increase of the resistance into the circulation and thereby raises the blood-pressure. The mechanism of this rise is of course very simple and therefore peculiarly well adapted for studying the effects of increased resistance and of rise of blood-pressure on the heart and on the nervous centers. Of the latter we have studied particularly the changes in the vasomotor center by the method which we have previously described (artificial perfusion of an organ in situ, shut off from the general circulation, but with the nervous connections intact).

**1, Effect of Aortic Compression on the Vasomotor Center:** It is a well known fact that stimulation of the depressor nerve in the neck causes a fall of blood-pressure. Since this nerve arises from the arch of the aorta and perhaps from the heart, it has been assumed that it is stimulated by any rise of blood-pressure and thus furnishes an automatic protection to the heart against excessive resistance. This assumption, however natural it may be, has not been experimentally established. Our method furnishes a good opportunity of investigating the question. If ever a rise of blood-pressure stimulates the depressor mechanism, we should expect the vasomotor center to be inhibited by the large rise which occurs when the aorta is compressed; and this inhibition should be discovered by our method; for direct depressor stimulation can thus be shown very nicely.

Our actual results, however, were contrary to these expectations. Compression of the aorta and, indeed, any other rise of blood-pressure, was found to produce a moderate constrictor effect; the stimulation being due, presumably, to increased intracranial pressure.

This in itself does not necessarily disprove the existence of a depressor function; for it would be possible that the depressor is actually stimulated, but is unable to overcome absolutely the stronger constrictor stimulation; in other words, whilst the depressor stimulation could not overcome the constrictor stimulation, it might at least reduce its intensity. In this case one would expect aortic compression to produce a greater rise of pressure

if the depressor nerve had first been divided. This also is not the case; the rise is quantitatively the same whether the depressors are intact or divided. Evidently then the depressor nerve is *not* an efficient protection of the heart against rise of blood-pressure, as is commonly assumed.

**2, The Absolute and Percentile Rise of Blood-Pressure on Compressing the Aorta:** We have pointed out in previous papers that circulatory reactions are markedly modified by the conditions of the circulation; specifically, that they are generally less if the blood-pressure is low, and greater if the blood-pressure is high—a matter incidentally of considerable practical importance, explaining, as it does, the lesser efficiency of circulatory measures in collapse conditions.

How is it with the relatively simple matter of aortic compression? Here we find that the absolute rise is the same for all ordinary levels of blood-pressure; for instance, if the pressure is at 50 mm when the aorta is compressed, it will rise by about 40 mm to 90 mm; if it is at 100 mm it will rise by 40 to 140 mm, etc.

Whilst the absolute rise is the same, the percentage rise is of course inverse. In our example at 50 mm the percentile rise would be 80 per cent; at 100 mm it would be 40 per cent, etc. The degree of vasoconstriction—the clamping of the aorta—is of course, uniform; hence, the absolute rise is a much better index of vasomotor changes of blood-pressure than is the percentile rise.

**3, Behavior of the Heart During Compression:** When the aorta is compressed, the heart is dilated to about the same relative degree in systole and diastole. The excursions remain practically unchanged. The high blood-pressure is maintained for at least twenty minutes, and then falls very slowly—the heart continuing to beat efficiently for several hours. Ordinarily, therefore, the heart is not discoverably injured by the high pressure and resistance. Sometimes, however, presumably because the heart is already weak, the muscle may pass early into sudden and irrecoverable fibrillation.

**4, Secondary Fall of Pressure:** When the pressure on the aorta is suddenly released, the blood-pressure falls temporarily below the normal level. This fall is generally attributed to vasomotor paralysis, but this view is disproven by our experiments. Our perfusion method shows that the vasomotor center



is not depressed in this period; sciatic stimulation still raises the blood-pressure; and the fall of pressure is equally marked with compressions lasting only half a minute, in which a peripheral vasomotor paralysis by anemia is excluded.

On the other hand, we have distinct evidence of cardiac changes. During the fall of pressure the systole and diastole are both incomplete; that is to say, the heart neither fills nor empties itself as completely as normally. This inefficiency of the heart cannot be due to an injury of the cardiac muscle; for as we have seen, the heart is able to work against high pressure indefinitely. The explanation is probably to be sought in temporary maladjustments. On the one hand, the tone of the heart muscle has been pitched to the high resistance and cannot instantly change its pitch to a low resistance. On the other hand, a large part of the blood thrown out by the heart is required to fill the depleted arterial system, so that the return flow to the heart must be temporarily impeded.

Similar temporary maladjustments must exist in any sudden change of resistance or loss of blood. They do not occur when the changes are produced gradually. We would therefore emphasize that it would be safer to apply any measures which alter the resistance to the heart gradually.

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**Chemical Research on the Brain.**—Pighini has reported distinct variations from the normal content of brain constituents in cases of progressive paralysis. The proportion of water is increased, while the quantitative relations of the significant lipid constituents are decidedly upset. In these abnormal brains cholesterol is increased along with a decrease in the phosphatids of the kephalin type, so that a sort of "cholesterol degeneration" may be postulated, if this expression may be used in a sense analogous to the term "fatty degeneration." What this accumulation of cholesterol may signify is reserved for the future to disclose. Pighini calls attention to the undue quantities of this lipid in the cerebrospinal fluid of paralytics, and believes that it may have significance for the outcome of Wassermann tests performed on this fluid.

For the present the distorted relative proportions of at least two prominent brain lipids—cholesterol and kephalin—in a definite pathologic manifestation of the nervous system must serve as a suggestion of the possibilities of future work in this field. The acknowledged difficulties in the attempt to master it need not minimize its importance or discourage continued effort. As an illustration of the prospects we may recall Fränkel's suggestion that kephalin, with its great avidity for oxygen and consequent role in the tissue respiration of the nervous system must have a conspicuous physiologic significance. It is not illogical to expect, therefore, that a pronounced decrease in kephalin as it has been observed in these brain abnormalities will damage the functions of the organs to which it naturally contributes. Undue speculations of this sort are dangerous, however, if they are permitted to bias our views beyond what known facts justify.—(*J. A. M. A.*)

## The Radical Treatment of Uterine Fibroids Based on Their Association with Malignancy

By R. E. SKEEL, M. D., Cleveland

The writer is one of those who has adhered until very recently to the classical idea concerning the treatment of fibroids, namely: to operate when, and only when, they were the source of serious annoyance or imminent danger.

This report is presented as embodying the chief but not sole reason for a complete reversal of this attitude and also as an apology for having held and taught the conservative attitude towards a uterus which was the host of a fibroid tumor.

The classical paper of Noble presented at the 1906 meeting of the American Medical Association was thoroughly studied at that time, but its importance was not fully appreciated, owing to the fact that it seemed as though too much stress was laid on minor complications such as hydrosalpinx and the like, and also to an inherent distrust of pathological reports which were not confirmed by ultimate clinical findings.

It required the clinical evidence embodied in the following experiences to set the writer's mind entirely at rest as to the proper treatment of fibroid tumors regardless of their symptoms, provided the tumor be of sufficient size to be discovered and positively diagnosed on examination.

The total number of private patients with fibroids operated upon during the period from 1905 to date is 72, for which supra-vaginal amputation was performed in 55 instances, vaginal hysterectomy once, vaginal myomectomy 5 times, abdominal myomectomy 5 times and panhysterectomy 6 times.

The pelvic complications present at the time of operation, aside from adhesions, were: salpingitis 6, ovarian cystomata 4, pregnancy 2.

One patient died four weeks after operation in consequence of perforation of a cecal ulcer, but it is impossible to say whether this was in any way associated either with the tumor or the operation. Of this number two have since died and one undoubtedly will die from malignant disease so distinctly associated with the uterus that it is impossible to evade the conclusion that the occurrence is something more than a coincidence.

Case I: (January 8, 1909) Mrs. P., aged 54, had passed the menopause some years since but six months ago suffered an injury, since which time she has been flooding profusely and suffering from pain in both hypogastric regions and the back. Examination showed a uniform globular uterus extending to the umbilicus. Cervix lacerated, internal os

open, and palpable within it the lower pole of an intra-uterine growth. Supravaginal hysterectomy; a submucous myoma was present. There was some bleeding approximately eighteen months from the date of operation. The patient did not report for examination until six months later, when a cauliflower carcinoma of the cervix was found from which she has since died.

In this instance malignancy may have been purely a coincidence, and weight is given to this view by the fact that on curetting away the vaginal portion of the growth the upper end of the cervix was found to be healthy. Panhysterectomy should have been performed upon this patient in the first place since the deeply lacerated cervix could have been of no use to her at her age.

Case No. II: (October 17, 1911) Mrs. R., aged 50, was known to have had a fibroid two years ago at which time she submitted to a physical examination because of constantly increasing weakness. She was having no hemorrhages but had not yet passed the menopause. At that time she was advised that the tumor was causing no trouble and should be left undisturbed.

Recently her health has been failing again and another examiner found albumen and granular casts in the urine, myocarditis with irregular, feeble heart action and a multicodular fibroid extending from deep in the pelvic cavity nearly to the umbilicus in the median line, with a fixed nodule in the right iliac fossa.

After some weeks of proper treatment, and with considerable misgiving on account of the wretched general condition of the patient, the abdomen was opened. The uterus had been rotated on its long axis by the growth of the nodule on its right which was intraligamentary and partly broken down.

There was considerable difference of opinion as to the character of this degeneration, but it was finally considered to be purely bionecrosis. However, pains soon began in the right hypogastrium, and eight months later a mass was apparent filling in the right side of the pelvic cavity. Exploratory incision and removal of a piece for microscopic examination revealed a medullary carcinoma. The patient died four months later.

Case No. III: (October 3, 1912) Mrs. F., aged 44, was operated upon six years ago by another surgeon for a fibroid of large size. Operation proved to be so difficult that it was abandoned after removal of the greater part of the mass. The bladder was accidentally opened and drained. The patient was infected and spent many weeks in hospital. Recently she has been having severe pain in the left hypogastrium. Menstruation regular, painless, a little free. General physical condition excellent.

Abdominal examination showed a movable tumor extending upwards and to the right as high as the anterior superior spine; to the left, a fixed mass occupying the greater portion of the pelvic basin. Operation was very difficult by reason of ancient adhesions and complete loss of anatomical landmarks. The bladder covered the entire front and top of the uterus proper. After separation of adhesions the tumor to the right together with the uterus was removed, leaving a fixed mass in the left broad ligament for further consideration. After stripping considerable of the broad ligament from the surface of this growth it was accidentally broken into and proved to be malignant. It was obviously impossible to extirpate it completely, and it was therefore left after removal of a portion for section. This proved it to be a spindle celled sarcoma, which in the opinion of the pathologist had its origin in a uterine myoma. Even

if the latter opinion is wrong and the malignant portion of the growth originated in the broad ligament rather than in the tumor its association with the latter is nevertheless full of significance.

It would be easy to cite other instances in which inoperable carcinoma of the cervix has been associated with tumors of the fundus and body not to be distinguished from myoma on physical examination, but these cannot be considered since the ultimate proof afforded by operation is not at hand and it might be found upon analysis that, considering the great numbers of patients carrying fibroids, cancer of the cervix was not demonstrably more frequent than in women having no fibroids, but as concerns malignancy higher in the uterus there can be no doubt.

These same cases would also form a basis for a discussion of the propriety of performing hysterectomy rather than myomectomy, save under very exceptional circumstances, as well as calling attention to the necessity for a consideration of the condition of the cervix in all operations for fibroids upon a patient who has borne children.

That the ultimate mortality rate from local malignancy in these operative cases should be 4 per cent, while the operative mortality, excluding the death from cecal ulcer, was nothing, or including it 1.4 per cent, is sufficient reason for paraphrasing Kocher's famous dictum concerning catgut and applying it to the uterus containing a fibroid.

Addendum: Since the above was written an old patient, who had hysterectomy for fibroid tumor in 1909, has developed a sarcoma involving the entire pelvic cavity, but so extensive that its point of origin is unknown.

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**Dispensary Abuse.**—The problem of dispensary abuse exists and must be solved.—The first step in the solution must be the creation in every dispensary of an executive head having sociologic training and interests. To this head and his assistants must be given final authority to decide admissions, and full control of all the functions of the dispensary excepting the medical treatment of the patients admitted. This executive staff will also develop the opportunities for preventive medicine and general social service.—A system of classified or graded admissions and graded or modified refusals will assist in the practical work of meeting the problem.—Such a system has been used in one dispensary for a year with satisfactory and pleasing results. It seems to be accomplishing much good, and no objectionable features have appeared.—A. R. Warner in *J. A. M. A.*

## Some Common Diseases Mistaken for Tuberculosis and Their Consideration

By J. C. PLACAK, M. D., Cleveland

The presentation of a paper whose title may seem so common place may not be amiss in helping to refresh in our minds some of the pitfalls in diagnosing tuberculosis. Many times in the diagnosis of incipient tuberculosis one is called upon to exhaust many means of diagnosis in forming positive conclusions.

As a rule, when the disease has advanced moderately and the offending bacillus has already begun to be expectorated, diagnosis is comparatively simple.

It should be the aim of the physician to establish his diagnosis before this time if possible, because the finding of the tubercle bacillus always means a beginning lung destruction, which may be too late to produce lasting benefit to the patient. Unfortunately many of our patients do not consult their physician until this state of advancement has already taken place. When in doubt and to save time it is better to advise antituberculosis measures, rest, fresh air, and feeding, until such time as a positive diagnosis can be made; surely such measures can do no harm. I will mention and briefly discuss some of the common conditions which we frequently meet in tuberculosis diagnosis.

*Adenoids:* Among some of the diseases, especially in children, which are mistaken at times for tuberculosis are conditions in the nasopharynx, principally adenoids.

Adenoids, especially if they be infected, contribute many of the signs seen in tuberculosis, fever, anemia, loss of weight, cough, fatigue, loss of appetite, night sweats, with the possible flat narrow chest which we so frequently see in these subjects. A collection of symptoms which one could very readily associate with a tuberculous disease.

Having a well marked case with the characteristic facial expression, mouth breathing, etc., a diagnosis can easily be made. I recall the case of a young girl 13 years of age, who presented a history of having lost weight, cough, night sweats, temperature of 99 to 100.8° in the afternoon and evening and anemia. Physical examination showed a flat, narrow chest with a few crepitant

rales to the right border of the sternum. No other lung signs were found. A persistent mucopurulent discharge was present from the nose. There was no expectoration. A diagnosis of tuberculosis was made upon the above findings. The von Pirquet and the Moro reactions were negative. The latter findings led to a further examination of the nose, throat, and urine. The throat and the urine were found negative; on examination of the nose an adenoid growth was discovered, so small, in fact, that trouble from this source was not suspected. This was shortly afterward removed and found to be soft and contained several pockets of pus.

Histological examination showed some breaking down of tissue. Sections were stained for tubercle bacilli and were found negative. The child improved rapidly in weight; anemia, cough and temperature disappeared and she is perfectly well today, three years after her trouble.

*Tonsillitis*: Hypertrophied tonsils containing suppurative areas many times produce symptoms which are mistaken for tuberculosis. Practically the same chain of symptoms may be present as those found in adenoid conditions. The tonsils need not be of great size. Usually there is some surrounding inflammation which contributes the irritation necessary to produce cough.

I have seen a number of such cases in dispensary and sanatorium practice, which have unqualifiedly been called tuberculous.

One case, a girl 16 years of age, had spent a number of months in the country under strict rest, open air and feeding treatment without any benefit. She was finally admitted to the sanatorium; on examination no active evidences of tuberculosis could be found. Subcutaneous injections of tuberculin produced no reaction. The apparently innocent tonsils were suspected and removed. Sections showed several pockets of pus in each tonsil. The pus contained staphylococci, no tubercle bacilli were found. After a very short stay in the institution she gained rapidly in weight, cough and anemia disappeared and she remains perfectly healthy today.

The above cases demonstrate that when in doubt a careful throat and nose examination should be made. Many such cases are found amongst school children and in the dispensary work of children. It is a very common thing to find a persistent eleva-

tion of one-half to a degree and a half of temperature in many children. This elevation of temperature usually disappears after removal of the adenoids and tonsils.

*Pyorrhea alveolaris* and suppurations about the teeth produce anemia, fever, and some gastric disturbances, which may sometimes be misleading.

*Disease of the Lungs:* Frequently in the diagnosis of pulmonary tuberculosis we lay too much stress upon apical retraction. This condition is due many times to apical lobar pneumonia, which, I believe, is more common than we sometimes suspect.

One condition which can hardly be called a common one, but one that should be born in mind, is a diphtheritic infection of the lung, which presents many of the signs of tuberculosis, even to the production of rales. I recall one such case, which was being treated as a tubercular. Repeated sputum examination for the tubercle bacillus showed a bacillus morphologically like the diphtheria bacillus. Sputum in this case apparently came from an associated bronchitis. The patient was given 3000 units of antitoxin and very shortly thereafter made a complete recovery.

Mild infections from the pneumococcus might likewise produce signs which simulate a tuberculosis. A condition of this kind is a rather difficult one to differentiate. It is a quite common occurrence to find in the sputum of a tubercular an abundance of pneumococci.

Influenza is a fairly common condition which sometimes produces a consolidation in areas of the lung, accompanied by dullness or impaired resonance, bronchial breathing and moist rales, with the associated subjective symptoms. In these cases, especially as the rales were also heard at the apices and as the hectic phenomena and emaciation became more pronounced, sufficient grounds were given for a diagnosis of tuberculosis to be considered. The absence of the tubercle bacillus and the persistence of the influenza bacillus in the sputum, the apparently rapid recovery and clearing up of the lungs, changed the diagnosis to that of an influenzal infection. The frequency of tuberculosis intervening in the above condition is a well known fact and should be borne in mind.

Primary pulmonary actinomycosis, which can hardly be considered a common disease, starts with symptoms of a bronchial

catarrh. The patient coughs and has fever, chills, sweats, and later copious expectoration of pus streaked with blood. Later we may find, after the tissue areas have broken down, signs of cavity formation. I once treated a case for tuberculosis over a period of a number of months never suspecting actinomycosis and only making the diagnosis at autopsy. The absence of the tubercle bacillus over such a long period, in view of the physical signs, should have led to a more careful sputum examination and discovery of the granules.

Bronchitis is with great difficulty discriminated from beginning tuberculosis. If the temperature rises in the late afternoon and evening the probabilities are greatly in favor of tuberculosis. In the acute form of bronchitis the temperature is fairly constant as a rule throughout the disease. In the chronic form little or no fever is the rule. Bronchitis shows no dullness, and the moist rales that are present vary in intensity from day to day and are heard equally on the both sides. From time to time rales are heard at the bases in bronchitis.

In tuberculosis, one apex is involved more than the other, and after deep coughing with subsequent deep inspiration the rales are more apt to remain than in bronchitis. There is also a gradual loss in weight and strength. If hemoptysis is the first symptom observed, which is many times the case, all other causes which produce spitting of blood should be excluded.

The greatest error may come in the so-called "silent chest" of tuberculosis, where one finds merely a very few scattered rales. Persistence in the search of the tubercle bacillus should be kept up. As aids in differentiating, one should give a diagnostic injection of one of the forms of tuberculin. A very valuable test, in doubtful cases, is the presence of albumin in the sputum of the tuberculous. I have found that the presence of albumin, with a positive von Pirquet reaction, is fairly conclusive evidence that tuberculosis is present.

Pleural growths which are met with offer occasionally a stumbling block for diagnosis. Here the pain seems to be greater than one finds in an ordinary pleurisy, although many of the signs may be present, which are usually found in a tuberculosis. Here again subcutaneous injection of tuberculin should be used for diagnostic purposes.

Carcinoma of the lung especially if it be situated at or close to the apex may be confounded with tuberculous disease.



While in sanatorium work I recall the case of a man 35 years of age, who was referred with a diagnosis of tuberculosis. He presented all of the physical signs of a consolidation in the right supra- and infra-clavicular regions. The sputum, which was always negative for tubercle bacilli, was quite scanty. The temperature ranged from  $99^{\circ}$  to  $100^{\circ}+$ . The patient became more anemic and was losing in weight. The cough was becoming more severe, and no results were obtained from heroic doses of cough sedatives. After being in the sanatorium for some two months a marked dullness was elicited in the mediastinum. The cough became still more severe and brassy in character, the face and neck swollen and cyanotic. The diagnosis of enlarged mediastinal glands, pressing upon the nerves and vessels, was made. Shortly afterward the patient died; at autopsy a beautiful carcinoma of the lung with extension into the mediastinum was found. From the clinical course I was led to believe the growth was primary in the lung. In this case a diagnostic dose of tuberculin should have been given in view of the repeated negative sputum findings.

*Chronic Appendicitis:* Of the many conditions which this disease is diagnosed for, there is one, at least as frequent, but possibly oftener overlooked, in which chronic appendicitis only reveals its existence by very mild, local symptoms which point to pulmonary tuberculosis.

For a couple of years I had been treating a young lad who was always in delicate health. Since early childhood this boy's development was very slow, he was anemic, listless, poorly developed and narrow chested: He seemed to be an easy victim to all the diseases of childhood; among some of them were otitis, sore throat and diseases of the rhinopharynx. Cough was present but not severe. An operation for the removal of adenoids was done without any great improvement; sections were negative for tubercle bacilli. Repeated examinations of the chest were made, without positive findings.

The lungs during all this time showed no change which would clear the diagnosis, nevertheless the diagnosis of tuberculosis was made. The parents were advised to change climate. They first tried the warm, sunny climate of California for a number of months without any benefit. Later they were advised to go to the Adirondacks, the patient slowly growing worse. After a short stay they returned home very much discouraged.

Soon after returning home something of great importance happened. The patient was taken very suddenly with a sharp gastrointestinal attack with a slightly tender spot in the right iliac fossa. A blood count showed a slight leukocytosis with a reduction of the red cells. No differential count was made. Appendicitis was suspected; the surgeon called in concurred in the diagnosis. Operation was performed and appendicitis found. Sections showed no tuberculosis. The patient several months after operation had gained rapidly in weight, lost fever, cough and anemia and remains perfectly well today.

I have seen several cases of this character, some of which were diagnosed; unfortunately one was lost, rather from the lack of a thorough examination. A careful blood examination in conditions of this kind, combined with one of the useful tuberculin reactions, is of great aid in making a diagnosis.

*Endocarditis:* The greatest errors which I have made and have seen made, have been in cases of mitral insufficiency, mitral stenosis and chronic vegetative endocarditis. More than once have I seen at autopsy some such condition of the heart which had been diagnosed as tuberculosis; more than once have I faithfully treated such a case as a tubercular, until some new sign appeared to lead me to change my diagnosis. It is the cases where no physical signs referable to the heart are found and where fever, chills, anemia and other subjective signs are present that are most difficult of diagnosis. Especially is diagnosis difficult if there be no physical signs, yet hemoptysis be present, as I have seen in a number of cases. One naturally associates the spitting of blood with tuberculosis, which is its most common cause. Yet in the absence of lung signs we must look elsewhere for the cause.

The presence of symptoms of pulmonary infarction, if such be sufficiently large, in the vegetative form of endocarditis helps in the diagnosis. Having the patient go through some exercise, such as forcing the arms out laterally or climbing stairs, aids in making the murmur, previously absent, audible. Examination of the blood, finding leukocytosis in vegetative endocarditis and a leukopenia in tuberculosis, aids in diagnosis. Examination of the blood and urine bacteriologically is another aid. Filtering or centrifugating the urine and examining the sediment for red blood-cells, which may be due to petechiae in the kidney, is another link in the chain of evidence necessary to complete the

diagnosis. Anemia in chronic affections, especially those of cardiac origin, should not be forgotten.

*Bacteriuria*: Occasionally we come in contact with cases where there is a urinary infection, which may be caused by a number of different organisms. These cases present a number of the signs and symptoms one finds in pulmonary tuberculosis: anemia, loss of weight, slight rise of temperature, occasionally gastric disturbances and a feeling of fatigue. One's natural inference from such a train of symptoms would lead him to suspect a tuberculous condition. Several times has this been brought very forcibly to my attention.

About a year ago the case of a policeman, with a diagnosis of tuberculosis, was referred to me for treatment. He gave a history of having been ill for a couple of months, having cough, loss of weight, anemia, temperature, etc. Physical examination showed a short high note at the right apex, with relatively sharpened breathing; no rales were heard on any portion of the chest. Throat examination showed some pharyngitis, which seemed to produce his cough and expectoration. This condition very likely arose from the fact that he was an inveterate cigaret smoker. Careful blood examination revealed nothing except the reduction in hemoglobin and red cells. No reaction was obtained by the subcutaneous injection of tuberculin. The urine showed a large number of bacilli which on culture were found to be colon bacilli. Treatment was instituted for this condition and he rapidly recovered.

*Syphilis*: There are no doubt many cases of syphilis without local signs, which produce symptoms common to tuberculosis. Especially is diagnosis difficult if the patient denies history of infection. That a certain limited number of cases present symptoms and signs that simulate ordinary ulcerative tuberculosis, but do not show bacilli, is a well known fact. Occasionally we meet cases where the symptoms are comparatively mild, making diagnosis quite difficult.

The absence of the tubercle bacillus, with a negative response to the use of tuberculin subcutaneously, should help materially in clearing up the diagnosis. The Wassermann reaction if positive should remove all doubt.

It must not be forgotten that luetics often develop ulcerative phthisis, and hence these infections are often combined. I have

seen a number of such cases which responded very readily to antisyphilitic treatment.

It is well to remember that a deviation of the spine and also pregnancy can by pressure produce physical signs in the lungs which are misleading. I recall several pregnant women who showed many rales, with sharpened breathing, principally on the right side, with severe cough, all signs disappearing after delivery.

No suspected case of tuberculosis should be passed upon without a careful urine and blood examination. The presence of a leukopenia has been of immense value to me in the diagnosis of tuberculosis.

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**The Right Way and the Wrong Way.**—*The Journal of the American Association*, in its issue for March 15, gives a summary of the public health legislation introduced in the various state legislatures and says: In California alone, over one hundred bills have been introduced. In Colorado between fifty and seventy-five measures of different kinds bearing on public health have been reported so far. Most of these bills are drawn by persons with but slight knowledge of the sociologic problems involved, without any experience in sanitary matters, and often with little knowledge of existing conditions in the state. The results of legislation produced under such conditions can be only what they have been for the last fifty years, namely, confusion and inefficiency. Governor Sulzer, of New York, and his special commission have adopted a better plan. The people of New York will reap the advantages. It is earnestly to be hoped that governors of other states will profit by this example, and will endeavor to elevate health conditions by a careful and intelligent inquiry into existing facts and the devising of adequate methods by which these conditions can be remedied, rather than by the presentation of a mass of hastily drafted, ill-digested measures on every conceivable phase of public health regulation. The weaknesses of our method, or rather lack of method, of enacting health laws are common to our entire legislative system. Physicians as practical scientists should lead the way in devising better and more accurate methods for health organization.

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**Newspapers and Medical Advertising.**—We hold a newspaper responsible for the news it gives us; we respect its editorial opinions as representing its editor's honest thought; why should we not hold him responsible for the wares he allows to be advertised in the columns of his paper? The better newspapers are quite unanimous in excluding the advertisements of "get-rich-quick" concerns, or fake mining schemes, and of obscene or immoral literature. Rarely nowadays do we find the "personal" column of a newspaper to be simply a more or less disguised directory of panders and prostitutes. In these respects the daily press has shown a constant improvement; but when we consider the advertising of medicaments generally we find another story. It is true that the majority of our leading magazines keep their advertising columns wonderfully clean, this is also true even of some of the religious papers which in the past have been notorious offenders. But the daily newspaper, with few exceptions, lags far behind in the crusade for decent advertising.—(J. A. M. A.)

## Difficulties in the Diagnosis of Gallstones

By F. E. BUNTS, M. D., Cleveland

The ordinary gallstone case is almost a self evident fact. Its history, clinical symptoms and typical course are so plain as to make a mistake in diagnosis seem almost impossible. It is not, however, these typical cases to which I wish to draw attention. Exceptions to the rule are very numerous; indeed, so frequent are they that one sometimes wonders whether it be proper to designate as typical those symptoms which occur only in a relatively small number of cases.

The difficulty of making a differential diagnosis of cholelithiasis from appendicitis, duodenal ulcer, gastric ulcer, nephrolithiasis and even from ruptured ectopic pregnancy arises so frequently that the so-called typical symptoms are soon made to assume their just rank as being of considerable importance if definitely present, but their absence can never be safely considered as conclusive evidence that cholelithiasis is not present.

I have ventured to select and present a few cases that presented symptoms making the diagnosis difficult or impossible.

One of the earliest that I recall was a patient of one of the world's most famous surgeons. The woman had been treated for gastric troubles and chronic malaria for many years, but the surgeon decided that there was a distinct point of tenderness under the right costal margin, there had been chills and slight jaundice and severe pain which she had previously been assured were due to a congestion of the liver. Evidently this was a plain case of neglected gallstones. An incision over the gall-bladder showed it to be absolutely normal. An inspection of the stomach and duodenum revealed no lesion, and palpation of the kidney disclosed no stone, but the appendix when brought to light was thickened, contained concretions and was apparently the cause of the trouble.

Some time since, I saw in consultation a woman past sixty who gave a very negative history so far as gall-bladder trouble was concerned. She insisted that she had never had attacks of pain, nausea, jaundice or fever. She had been gradually growing more and more constipated, alternating with attacks of diarrhea. She was greatly emaciated and on examination a hard, irregular mass apparently attached to the ascending colon

was disclosed. It was not painful and only slightly tender on manipulation. The lump seemed fixed and did not move up or down during forced respiration. The patient had no fever but a leukocytosis of 15,000 was present. The diagnosis seemed surely to be carcinoma, the exact part involved not certainly but probably the ascending colon. Owing to her very feeble condition it was decided not advisable to operate. Within a week the mass had increased in size and became less nodular and thinking it might possibly be an empyema of the gall-bladder the woman was operated upon and we found an empyema of the gall-bladder rupturing through the peritoneum and invading the overlying muscles of the abdominal wall with dense surrounding adhesions of the omentum. The gall-bladder contained numerous stones. At the neck of the bladder, however, there was beginning carcinoma, but this of course could not be palpated previous to operation.

A man past seventy presented himself for operation for a thoracic fistula consequent upon an operation for thoracic empyema some months previously; while probing the fistula I detected something hard and enlarging the wound between the ribs in the axillary line was able to remove fifteen fairly large gallstones. Their presence or the idea that he was suffering from gall-bladder trouble had never before been suggested.

Some time ago I was called to see a case of ruptured gall-bladder and found the patient in collapse. The history of the case was not quite satisfactory as to the primary location of the trouble, but the attending physician felt very confident of the correctness of his diagnosis. My own diagnosis was ruptured ectopic gestation. An operation which was at first positively refused by the patient and her husband, was permitted the following day and a large amount of blood and a ruptured right tube removed and recovery ensued.

Another patient who had been treated for many months for gastric disturbance and finally upon the discovery of casts and albumen in the urine and colicky pains diagnosed as renal colic with probable renal calculi, changed her physician and a diagnosis in which I concurred was made of empyema of the gall-bladder. This proved on operation to be the case and in addition a number of stones were found in the gall-bladder.

In this connection I may call attention to the fact that in persistent gall-bladder trouble changes in the urine manifested

by the presence of casts and albumen are not uncommon and are not necessarily a bar to operative interference.

Another illustration of the difficulty which sometimes arises presented itself in a woman who had been under careful observation in one of our hospitals for gastric disturbances with rather indefinite attacks of abdominal distress, in which a diagnosis of cholecystitis with probable gallstones had been made. She had been sick for several weeks when I saw her at her home. She was sallow but not jaundiced, nervous, emaciated, unable to retain food, had frequent abdominal cramps and diarrhea. Her prominent eyeballs, tremors, pulse of 140 to 160, excitability, and abdominal symptoms seemed to me to point clearly to a diagnosis of Graves' disease even though the thyroid was not palpable. Of course it was impossible to say that she had not also had an attack of cholecystitis previously, but at the time that I saw her certainly no other diagnosis than Graves' disease seemed justifiable.

Another woman past sixty was sent to Charity Hospital with the history of repeated attacks of pain, colicky in character, intermittent in type and referable to the gall-bladder region, there was never any jaundice noticed either by the patient or physician and she appeared to be in splendid physical condition at the time of operation, when I found numerous gallstones indeed, but something entirely unexpected, a small carcinoma of the fundus of the gall-bladder with a large number of carcinomatous nodules scattered through the liver. The pathologist's report of carcinoma corroborated the operative findings.

The frequent diagnosis of gastralgia which formerly covered so many real cases of gallstone disturbances is happily becoming less common. An illustrative case is that of a physician who was treated and treated himself for several years for gastralgia or neuralgia of the stomach and only submitted to operation after an empyema and rupture of the gall-bladder had occurred.

Milder forms of indigestion characterized by discomfort and slight pain more or less continuous in the region of pylorus are very difficult oftentimes to ascribe to their proper cause and in some of these cases which persist in spite of well directed medication, an exploratory incision may be the only way of discovering that the trouble is caused by some not very active gallstones. The difficulty of distinguishing between an attack of

renal colic and that due to biliary calculi is often insurmountable during the acute stages of its onset but with its subsidence the differentiation usually becomes sufficiently marked to clear up the diagnosis. If not, there is ample time to secure the aid of the X-ray, which, while of little or no real utility in discovering gallstones is of paramount importance in the diagnosis of renal or ureteral calculi.

The diagnosis of acute gastritis is fortunately becoming less frequent and in the absence of direct evidence of poisoning, the possibility of gallstone colic should be eliminated before considering such a diagnosis. An illustrative case is that of a gentleman, who had had several attacks of indigestion diagnosed by most excellent physicians in this city and in New York as acute gastritis, who subsequently came to operation for gallstones in large numbers associated with empyema of the gall-bladder.

In several cases Riedel's lobe has been diagnosed as an enlarged gall-bladder and the patient sent for operation for supposed hydrops or empyema of the gall-bladder. This lobe springing from the right lobe of the liver is most frequently found in thin people and in women who have resorted to tight lacing. It is often tender and sensitive to pressure and may be easily palpated. It rises and falls with respiration and can usually be demonstrated to be connected much more broadly with the margin of the liver than an enlarged gall-bladder. It must be remembered, however, that it is very frequently though not uniformly associated with cholelithiasis, and that when the stone is in the duct and the gall-bladder much shrunken, it adds very materially to the difficulties of the operation.

Duodenal and pyloric ulcers, acute pancreatitis, ileus, even tabetic crises have been mistaken for biliary colic and I could multiply from my own records illustrative cases of mistakes in diagnosis along the lines of cases already mentioned.

Possibly many other sources of error in diagnosis may have been observed by others. These are simply cases taken from my own records of cases of gall-bladder disease. The important thing is, how may these errors be reduced to a minimum?

First: One must have a clear picture of gallstone attacks. This is probably familiar to every one, and if not is to be found best in any surgical monograph upon the subject.



Second: Never accept a diagnosis of acute indigestion as satisfactory unless the possibility of gall-bladder disease has been considered and definitely eliminated.

Third: The resort to the use of the X-ray by an expert when there is a reasonable doubt as to the existence of renal or ureteral calculi.

Fourth: Always consider with the greatest care and minutest scrutiny the history of each previous attack, when the question of appendicitis is raised, paying particular attention to the time and apparent cause of the attacks, duration, degree of fever, presence of jaundice (of slight value), location of pain, location of rigidity, and, after the subsidence of the acute pain, the location and persistence of tenderness.

In connection with the history of pain it is interesting to note how many times repeated hypodermics of morphin have been found necessary in gallstone attacks and how seldom they have been given, or at most, repeated in appendiceal attacks.

Fifth: Carcinoma of the liver is nearly always a secondary growth and may or may not be associated with gall-bladder disease. When it occurs at the cystic end, there is continuously increasing involvement of the common duct, causing progressive jaundice. It must be remembered, however, that the early appearing jaundice accompanying carcinoma of the gall-bladder or ducts may be instrumental in causing a catarrhal jaundice which will clear up temporarily or to a limited extent under appropriate medical treatment, thus obscuring for a time the real gravity of the case, but in any considerable carcinomatous involvement of the common duct the jaundice is permanent and progressive.

Naturally, there are a great many other points to be considered in making a differential diagnosis from the many pathologic conditions with which gall-bladder disease may be confounded, but in my estimation a careful attention to these fundamental conditions will enable us to escape most of the errors to which this paper has sought to call attention.

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**Boiled and Raw Milk.**—Raw milk and boiled milk are clinically very different foods; the most striking difference between them as shown experimentally is in their reaction to rennin; the casein of raw milk, unless modified so that it will not form hard, large, coagula offers serious difficulties in digestion that are not present in boiled milk; these differences between raw and boiled milk should always be borne in mind in comparing clinical, therapeutic and experimental results in infant-feeding and elsewhere.—Brennemann in *J. A. M. A.*

## The Influence of Lipoids on Hemolysis

By J. D. PILCHER, M. D.

(From the Pharmacological Laboratory of Western Reserve University, Cleveland)

While working with a number of laking or hemolytic agents it was observed that a number of bland oils increase the hemolytic power of certain substances which are either lipid solvents (alcohol and ether) or are soluble in oils (chloral hydrate). This holds true whether the blood corpuscles are first shaken with the oils and are then added to the plain hemolytic agent, or whether plain or "oiled" corpuscles are added to the hemolytic agent saturated with the oils. The increased hemolysis caused by the oils was not due to free fatty acids, for the oils were neutral or at least very faintly acid to alcohol moistened litmus. The "oiled" blood, on standing, did not lache before the plain blood. Shaken plain blood behaved as unshaken blood. It is suggested that the oils increase the permeability of the lipid (lecithin-cholesterin) cell envelope to the laking agents.

**Methods:** Defibrinated sheep or beef blood was thoroughly shaken with about 10 per cent of cottonseed, linseed and olive oils and petrolatum liquid (mineral oil); placed in glass cylinders of uniform size and allowed to stand several hours until the excess oil had risen to the surface. Samples of the blood were then pipetted off from the same level (to insure practically the same number of cells in each case) and diluted to 5 per cent with normal saline. Definite amounts of this suspension were then added to definite quantities of the laking agents dissolved in normal saline.

**Alcohol:** Several series of experiments were made, using 50 per cent alcohol in normal saline as a laking agent. The results were fairly uniform, but for the sake of simplicity only one series will be discussed. 5 ccm of a 5 per cent mixture of sheep's corpuscles, both plain and "oiled," were added to 3.7 ccm of plain alcohol made up to 5 ccm with normal saline solution. The linseed and olive oil corpuscles were laked within five minutes, the petrolatum in thirty and the plain corpuscles in sixty minutes. With 3.5 ccm of alcohol, plain and petrolatum corpuscles were laked in about three hours, the cottonseed oil corpuscles in one and one-half hours, while the linseed and olive

oil corpuscles were still laked in five minutes. In other experiments, petrolatum corpuscles were laked somewhat more readily than plain. When the alcohol was saturated with the oils it was found that laking occurred more rapidly than with plain alcohol, so that in this series smaller quantities of alcohol were used. 2 ccm of alcohol saturated with linseed and olive oils laked linseed and olive oil corpuscles within one hour, and cottonseed corpuscles somewhat less rapidly; the plain and petrolatum corpuscles were laked overnight. Alcohol saturated with cottonseed oil and petrolatum liquid laked linseed, olive and cottonseed (the latter only partially) corpuscles overnight, but not plain and petrolatum corpuscles; so that linseed and olive oils increase alcohol laking more than cottonseed oil and petrolatum. Linseed oil is soluble in ten parts of absolute alcohol, olive oil sparingly, cottonseed oil and petrolatum very sparingly. This difference in solubility may explain the greater action of the linseed and olive oils, although there was not a great difference between the action of the two and linseed oil is much more soluble in alcohol than is olive oil. In the presence of oils even completely laked mixtures may be cloudy, so that the microscope was employed to determine when the corpuscles were in complete solution.

**Chloral:** A 5 per cent normal saline solution of chloral hydrate, plain corpuscles and those shaken with olive oil were used. Nine parts of the chloral solution laked the "oiled" corpuscles in one hour, but the plain corpuscles were not completely laked in twenty-four hours; six parts of chloral laked the "oiled" corpuscles as rapidly as twelve parts laked the plain cells. (It will be recalled that chloral is soluble in oils.) Saturation by olive oil of the chloral solution (which must take up little if any oil) does not increase the hemolytic power of the chloral, but lakes "oiled" corpuscles as rapidly as the plain chloral solution.

**Ether:** The experiments with ether are still incomplete. However, ether plus 10 per cent of olive oil causes hemolysis somewhat more rapidly than ether alone, but this may simply mean that the addition of oil to the ether causes a more perfect mixture with the diluted corpuscles. Larger quantities of oil added to the ether (equal parts) somewhat lessen the action, but the mixtures lake somewhat more rapidly than plain ether.

## Clinical Results of Nasal Treatment in Asthma

By W. J. ABBOTT, M. B., Cleveland

The problems in asthma are complex and may be viewed from many sides, for example, etiology, pathology, general management of the case, diet, etc., but I wish only to touch on some of the results that have been obtained by treatment in the nasal passages and do not wish to touch at all on the changes that occur in the chest nor refer to the result of drug or general treatment. The cases that I wish to take up are pure cases of bronchial asthma and I do not, of course, refer to cases of dyspnea from other causes, for example, cardiac; or those due to pressure on the trachea from aneurism, goitres, etc.

In 1876 Voltolini reported a case of asthma where he found nasal polypi, the removal of which was followed by a disappearance of the asthma but when they recurred the asthmatic symptoms also reappeared. After that, cases were reported both in Europe and America of a similar kind with similar results. One of the most interesting articles I have found in this relation is a monograph by Woakes: "*On Nasal Polyphi, Their Relation to Headaches, Ethmoiditis, Asthma, etc.*" London, 1885. This advances an explanation of the method of action of this nasal trouble in causing asthma due to a reflex arc. This seems to have been accepted pretty generally but the percentage of asthmatic cases supposed to be caused by nasal conditions seemed to be rather small. Cases were reported from time to time and the reflex idea seems to have been accepted in a general way. In 1902 Francis reported some good results from routine cauterization of the middle turbinate region and about the same time McKenzie reported outlining sensitive areas in the region of the middle turbinate bodies and advised cauterization. This method was used with varying results by different men, but never appeared to be universally adopted.

The writer, in working over some cases of asthma, was struck by several unsatisfactory things regarding the reflex theory and was made to understand why some cases of empyema of a sinus (sphenoid, frontal or maxillary), some cases of deviated nasal septum and some of adenoids caused asthmatic symptoms reflexly and some did not, and especially where some cases appeared where a hypersensitive or neurotic disposition did not

exist to give the predisposing cause. This led to an idea that in all these varying conditions some one condition must be found which would be constant. If for the sake of argument one decides that the usual causes do not act through a reflex arc, but act in some other way, for example, absorption of a toxin which causes the chest conditions, still one is unable to see how the various sinuses would produce a toxin which would act in this peculiar way in some few cases and not in others. And when we think of a deviated septum being capable of such a result, it seems absurd, or else we are led again to the conclusion that among these various conditions there must be found some condition which is constant in the cases where asthma occurs, or else we must look to some other part or to various parts of the body for an explanation. It was with this proposition that I worked over almost thirty of my series of forty-four cases of bronchial asthma that I have been able to follow long enough to feel that it was fair to draw some conclusions. In the first cases seen, I had no theories and no very concise idea of what to look for or to try to avoid in the way of treatment to be able to get facts that might have some bearing on existing theories.

It was found in all the cases of bronchial asthma that were seen that there was a more or less hypertrophied condition of the mucous membrane over or near the middle turbinate body and in all but two of the cases removal or lessening of the hypertrophied condition caused a disappearance or improvement, in a very short time, of the symptoms of asthma. Of the two cases where the results were not so satisfactory, I wish to explain that they were suffering from an acute asthmatic attack at the time and the whole mucous membrane was very much swollen and was edematous in appearance at the time the treatment (operation in each of these cases) was made. It irritated the condition and the patients disappeared. However, since then I have seen two other cases in a similar condition. These were treated until the acute condition subsided, then the operation was made with immediate and complete removal of wheezing and difficulty in breathing. I feel satisfied that the two unsatisfactory cases were due to the nasal conditions, the irritation of which caused an increase in the severity of the symptoms, whereas if they had been watched for a few days before operation, I feel confident the marked swelling of the nasal mucous membranes would have subsided and the operations would have been followed by different results.

The question as to the origin of these hypertrophies is of interest, but it may be sufficient to say that at present many of the authorities in rhinology believe that any hypertrophy of the middle turbinate bone or hypertrophies of the mucous membrane about it indicate an inflammation of the ethmoid cells or an ethmoiditis. It might be advisable to quote McDonald in this connection: "Recent authorities (St. Clair Thompson, Lack, Parker and Luc) agree in this view and probably it is now generally accepted." Then we may now use the term "ethmoiditis" instead of referring to these more or less prominent hypertrophies, although this is not the only form of ethmoiditis. In thinking of these conditions it occurred to me that if this were true, that is, if asthma were due to an hypertrophic ethmoiditis, it should be possible to get cases where the conditions were not sufficiently severe to cause asthma. The symptoms which it seemed to me might be caused, before the condition crossed the asthmatic threshold, were: (1), bronchitis (which would necessarily be more or less chronic and would appear in attacks similar to the history of asthma); (2), spasmodic coughing attacks; (3), spasmodic sneezing attacks.

These at least it seemed necessary for me to find and to prove that they would also disappear or improve with the removal of the ethmoid condition. This I have been able to do in several cases. The results in the cases that have been diagnosed as bronchitis were very satisfactory and as the condition disappeared, improved or grew worse with similar changes in the ethmoid, I felt satisfied that my conclusions were correct. Then if this were true, it would be possible to judge the severity of the symptoms in these cases of bronchitis, the cough or the sneezing, by inspection of the middle turbinate regions. This I have repeatedly proved to be true.

Several rhinologists still appear to believe that an empyema of some of the nasal accessory sinuses might directly cause the asthmatic symptoms. In my cases I was careful to diagnose the conditions in the frontal, maxillary and sphenoid sinuses as far as possible and to detect an empyema if one existed. In all of these cases I have found that if any change occurred in the asthma after the empyema was cleared up there was a corresponding change in the ethmoiditis, and this change was more or less slow, allowing slight changes to be noted from day to day. Some cases, however, showed no improvement in the

asthma and correspondingly none in the ethmoiditis. Also it was found that the ethmoiditis could be cleared up, leaving the empyema, and the asthma would disappear at once with the disappearance of the ethmoiditis. I have now a case under observation in which an empyema of the sphenoid was found. The ethmoid was operated last June (June 12, 1912), and there has been no wheezing since except a very slight attack about two weeks after the operation. This was caused by the patient getting into a dense cloud of smoke and it disappeared in a few minutes. This case was seen December 22, 1912, to be treated for an acute rhinitis which before had always brought on an asthmatic attack and reported "My head has felt mean for about a week but no asthma yet." She has been subject to asthma for over eight years. Also in a case of frontal empyema with a subsequent chronic maxillary empyema, signs of an ethmoiditis appeared while the patient was under treatment. Upon questioning him regarding indications of a bronchitis, coughing or sneezing attack, he told of a cough with expectoration. The signs were those of a bronchitis. The condition was allowed to go on for about ten days, then operated and the cough disappeared suddenly, with no recurrence as yet, although two months have elapsed. Some might suggest that this method of treatment acted through suggestion, but in two cases recently seen, the patients came to me on account of throat troubles and they were told that the nasal treatment was to remove the condition that caused the throat trouble. The next day they both reported the best night's sleep for months and no asthma. These various ways of looking at the series of cases has proved to me an ethmoiditis is present in and has a causal relation to, at least, a very large percentage of the cases of bronchial asthma.

The treatment that I have used in these cases has necessarily varied with the variations in the conditions found. Sometimes the ethmoid condition was uncomplicated, so treatment was directed to it alone, while in others it was found that there existed other conditions which seemed to have been the cause of the ethmoiditis. Then the procedure would be varied; that is, in some cases the condition that seemed to be the cause of the ethmoiditis was removed first to allow observations on the changes in the ethmoid and the asthma, while in other cases the ethmoid condition was attacked at once. The conditions which

I have seen which seem to have caused the ethmoiditis were empyema of the frontal, sphenoid or maxillary sinuses, adenoids and deviation of the septum.

When the ethmoiditis alone existed the treatment varied from local applications of silver nitrate, chromic acid, trichloroacetic acid, cauterization with the electric cautery and simple removal of the apparent hypertrophic tissue, to a complete cleaning out of the ethmoid cells. It has been my plan so far to be as conservative as possible, until I could get some idea of how far we were compelled to go in treating the different conditions. This has led to recurrences at times but if there is a recurrence it generally is much less severe and of shorter duration than the previous history has shown; and in any case, if there was a recurrence of the asthma there also was a return of the ethmoiditis. This being true, one would expect that cases that come in for observation and treatment at definite periods for some months should show a lower percentage of recurrences and this has also been observed to be true.

The prognosis seems to depend on the extent to which the ethmoid was removed and on the amount of care the patients may take of themselves. That is, supposing that the condition which caused the ethmoiditis, if there was such, for example, empyema of an accessory sinus, adenoids or deviation of the nasal septum, were removed, I can see no way of getting a case at one sitting in such a condition that no recurrence is likely unless one does a complete removal of the ethmoid cells with middle and superior turbinate bones. This latter I think is extreme, as the object is drainage. However, seeing that a complete removal of the ethmoid cells is desirable and the operation to get all the cells cleared out and leave the turbinate bones intact is rather difficult on account of the anatomy of the ethmoid, and the adjoining structures that could be injured are so important, that I feel justified in doing all that is possible at the first sitting and to clean up in a month or six weeks any parts which show that some tissue is left and in cases where this has been done there has been no recurrence of the asthma. Some cases treated in this way have gone for one year and some for about one year and a half and no trouble has been seen to date.

The results that I have been able to get so far are very interesting. In one case, a woman of forty, asthma had existed for twelve years, and had been constant, with frequent severe



attacks. After operation she was clear for two months and the attack was mild. A young lady of twenty-six, who had been asthmatic for twenty-three years, with severe attacks at frequent intervals, was free for three and one-half months when a slight attack laid her up for three days and she had only used drugs during those three days, although before operation she was up every night for months for an hour at least inhaling and taking drugs of different types. A man of twenty-six, with a history of asthma for about eight years, was free ten months after operation, then suffered for five days from asthma after a severe cold and has been free now for four and one-half months and has gained twenty-three pounds in weight. The case that has gone longest with no recurrence is now about two years and two months since treatment.

It seems to me that the best results are to be obtained by a more congenial working together of family doctor with the rhinologist, although in some cases the specialist ought to see the patients for nasal and for tracheal and bronchial local applications, as reported by Freudenthal and others.

After most of these observations had been made, I ran across the writings of Auer and Lewis on anaphylaxis and an article by Meltzer referring to the similarity of conditions found in the lungs after death from a toxic anaphylactic dose and the findings in asthma. This would seem to support my argument and to be supported by my observations.

Of my forty-four cases, nine were treated by me at the Lakeside Hospital Dispensary and I wish to thank Doctor J. M. Ingersoll for permission to include them, and to thank Doctor John Phillips and other members of the medical clinic there for referring cases to the nose and throat clinic, for assisting in diagnosis and for making extra examinations of the chest at my request.

210 *Lennox Building.*

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**Smallpox and Vaccination.**—Smallpox can be prevented in one way only. That way is vaccination. With the pure virus furnished today, vaccination is perfectly safe and absolutely harmless, causing little inconvenience and giving seven years of absolute protection. Every child should be vaccinated when three months' old and every person should be vaccinated once in seven years. The discomfort is trifling; the protection is absolute.—(*Virginia Health Bulletin—Almanac.*)

### The Organization of Medical Schools

By CHARLES F. THWING, LL. D., President of Western Reserve University, Cleveland

The pragmatic basis is a good basis for any organization, academic, commercial, or industrial. What works well is well; what works ill is ill. Yet organizations of certain forms are foreordained to comparative failure, and others give assurance of efficiency and achievement.

It is at once presumed that a medical school is needed wherever it is to be organized; needed to train practitioners, and also needed as an endeavor for the promotion of research.

Under this presumption in the organization of medical schools, I wish to say:

First: Two official boards are required and are sufficient. One board, usually called a Faculty, is to be concerned with the teaching and scholastic affairs; the other, usually called Trustees, is to be concerned with the financial and nonacademic administration. It is not well for those engaged on the medical side to be directly responsible for the financial. For the investing of funds, a chief duty on the financial side, is a most delicate and difficult undertaking. To men trained in this service and apt for it, is this duty to be entrusted. Members of a Faculty are not usually so trained and so gifted. The history of the administration of the colleges of Oxford and Cambridge, of which the teaching staff are largely responsible for administration, does not give ground for the adoption of a similar method in the organization of our academic undertakings. It is also said that Trustees are not to be immediately concerned with the academic side of administration. They are not qualified to judge of or to administer affairs of instruction.

In certain medical schools and other academic institutions, three official bodies are found. Our oldest college is thus governed—the Faculty, the Corporation, and the Board of Overseers. But the organization which was instituted by Harvard has not proved to be the common method. The advantage of three boards lies in the greater assurance that all changes made are wise. The disadvantage consists in the greater difficulty of making worthy improvements. The advantage of two boards is found in the ease of making changes; the disadvantage is found in the far too great ease of radicalism.

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*An address at the Annual Conference of the American Medical Association, Chicago, February 24, 1913.*

It is also to be said that a Faculty is to be constituted of the heads of departments. Such officers belong to this body by reason of their official relations. Membership should not usually be extended beyond such a condition.

In a single headship I believe, rather than in a committee headship. The committee headship may give wisdom, but it is in peril of not giving efficiency.

In that most important and central matter in the selection of members of the teaching staff, I believe that the method which proves most effective is that the Faculty, through a committee, shall make nominations. These nominations should be borne by the President to the Board of Trustees, who, of course, will usually accept and confirm nominations thus made. In making such nominations and elections, the President by virtue of his office is a member of each committee. With him each committee should confer, and he should cooperate with each committee, but the President should always be solicitous that the primary responsibility should rest upon the committee of the Faculty or the Board of Trustees. The monarchical element in the most delicate and difficult matter of choosing professors is fraught with extreme danger. In this matter, and in every other matter pertaining to the proper organization and administration of a medical school, too great emphasis cannot be placed upon the value of atmosphere, spirit and feeling.

I have also been asked to say a word in regard to its relation to the school of medicine of Western Reserve University and to its allied Lakeside Hospital. It is only the request that makes me bold to speak about a matter which is more or less personal.

It is to be said that a majority of the men who are Trustees of Lakeside Hospital are also Trustees of Western Reserve University and of its School of Medicine. These members represent wisest and strongest personalities. They are the highest type of gentlemen. The relations between these two institutions, Hospital and the School of Medicine, are embodied in a memorandum of agreement which they renew each year and which does remain to all intents and purposes permanent. Among the most important parts of this agreement are:

- 1, That the School of Medicine has exclusive clinical privileges at the Hospital.

- 2, That all positions on the visiting and dispensary staff of the Hospital are filled exclusively from the School of Medicine.

3, That all positions on the resident, externe, and interne staff are chosen from graduates of the School of Medicine and from graduates of such other schools as are agreed upon from time to time by the Trustees and the staff of the Hospital and the Faculty of the School of Medicine.

4, That there shall be no separate staff or staffs for pay wards, but these wards are under the direction of the regular staffs. The Trustees of the Hospital, however, reserve the right to admit surgeons and physicians outside of the medical school faculty and to them are given operating facilities under the approval of the visiting physician or surgeon of the service concerned.

5, That the dispensary and out-patients department of the Hospital are for the exclusive use of the members of these services.

On the other side:

1, The School of Medicine agrees to pay to the Hospital for the clinical and nominating privileges of the Hospital a stated sum each year, and also a proper sum for such educational facilities as a hospital offers for the teaching of students.

2, The School of Medicine makes nominations for all Hospital positions. These nominations are first approved by the Trustees of the University and are thence sent to the Hospital Trustees.

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**"Of Regiment of Health.**—If you fly physic in health altogether, it will be too strange for your body when you shall need it. If you make it too familiar, it will work no extraordinary effect when sickness cometh. I commend rather some diet for certain seasons, than frequent use of physic, except it be grown into a custom. For those diets alter the body more and trouble it less. Despise no new accident in your body, but ask opinion of it. In sickness, respect health principally; and in health, action. For those that put their bodies to endure in health, may in most sicknesses, which are not very sharp, be cured only with diet and tendering. . . Physicians are some of them so pleasing and conformable to the humor of the patient, as they press not the true cure of the disease; and some other are so regular in proceeding according to art for the disease, as they respect not sufficiently the condition of the patient. Take one of a middle temper; or if it may not be found in one man, combine two of either sort; and forget not to call as well the best acquainted with your body, as the best reputed of for his faculty."—Francis Bacon: *Essays*.

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**Vaccination Aphorisms.**—It costs less to vaccinate an army than to quarantine a county. The man who dreads vaccination never saw small-pox. There is less danger in vaccinating a person than in cutting a corn. A scar on the arm is preferable to a pit on the nose. When the doctor says it "may be chicken-pox," get vaccinated.—(*Virginia Health Bulletin—Almanac*.)

## Duodenotomy for Removal of Impacted Sewing-Machine Needle

By J. J. BUCHANAN, M. D., Surgeon to Mercy Hospital, Pittsburgh, Pa.

The patient, a girl of five and one-half years, kindly referred by Doctor Simpson, of Summerville, was brought to Mercy Hospital on March 4, 1912, with a history of having swallowed a large sewing-machine needle four days before. No abdominal symptoms supervened and with the exception of a whooping-cough, which was in the subsiding stage, the child was well.

An X-ray plate was made on the afternoon of her admission, which showed the needle at and to the right of the median line, lying diagonally, in front of the bodies of the third and fourth lumbar vertebrae.

It was desirable to know whether the needle was fixed or moving down the intestinal tract. The child was kept in bed till the next morning when another plate was made, which showed the needle in practically the same location.

The abdomen was then opened, in the median line, and the stomach palpated with negative result, as was to be expected from the apparently fixed position of the foreign body. It was thought, before operation, that the needle was probably impacted in the duodenum, as this is the only fixed part of the intestine in the region of the lumbar vertebrae. The first division of the duodenum and the free part of the second division were palpated carefully without effect. The transverse colon was drawn upward and an opening made in the transverse mesocolon, as if for posterior gastroenterostomy. Through this opening the finger was passed into the lesser peritoneal cavity and the anterior surface of the third division of the duodenum was palpated, with the result that the blunt end of the needle could be felt through the intestinal wall.

It was, however, too remote from the opening in the mesocolon to permit its extraction and this division of the duodenum is immovable. It was now decided, the needle being definitely located in the third division of the duodenum, to practice Kocher's method of mobilizing the descending (second) division, incising it in front and extracting the needle with forceps passed down its lumen.

The peritoneum to the right of the descending division was incised and allowed the corresponding part of the intestine to be drawn up. A transverse incision was made in the lower part

of the mobilized intestine. Through this incision forceps were passed and, after two or three efforts, the needle was seized by the blunt end and drawn out.

The intestinal incision was closed with a Czerny-Lembert button-hole suture of silk. The opening in the transverse mesocolon was also closed and the abdominal wall. Recovery was uneventful.

The points of interest in this case are: (1), that the sewing-machine needle was too long to traverse the short curves of the duodenum; (2), that it was located with great probability by the two X-ray plates taken eighteen hours apart; (3), that, although probably impacted for three or four days in an intestine in close proximity to the aorta, vena cava and other important vessels, no harm resulted; (4), the difficulty of finding it and the method by which it was extracted.

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**Full-Time Medical Instructors.**—The term “full-time instructors” as applied to medical colleges means exactly the same as if applied to a scientific school or a college of liberal arts. No one thinks of arguing that a teacher in our standard colleges of liberal arts should be permitted to engage in private business in all except the strictly class-room hours. So for medical colleges the object sought by the requirement is to secure teachers who are paid sufficient salaries so that their life-work and their chief interests may be devoted to the training of medical students. The teaching of modern medicine, particularly in the laboratory branches, can no longer be satisfactorily done by busy practitioners or by others who can devote only fragments of their time to teaching, and who are required to look to other unrelated lines of work for their livelihood. As to research in the medical school, the expert teacher must of necessity be engaged in research if he is to keep up with the rapid developments of his subject and if he is to bring into the medical college the spirit of investigation with which every medical student should become imbued. If the teacher by his own research is fully up to date in his subject and has something worth while to add to the world’s knowledge of that subject it would by no means detract from his usefulness as a teacher for him to use his spare moments in reporting such facts, or in writing a book on that subject. Unless he is an authority in his subject he would scarcely be in position to write a text-book. Again, expert duty along the lines of the subject taught might really add to an instructor’s teaching ability. Vacation time also is the instructor’s, to be used as he may see fit. No outside work, however, should be allowed to interfere with his first work as a medical teacher. The “full-time” teacher is one whose work *is in the college*; his private library is there; his research work is there; his interests are there; he can be readily found by the students to whom his work is a constant inspiration. Instead of the empty, lifeless laboratory of former times headed by the busy practitioner, the full-time teacher’s laboratory is an active, orderly place—a constant and present example to those who are fortunate enough to become his pupils.—(J. A. M. A.)

# The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and  
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

THE OFFICIAL ORGAN OF THE ACADEMY OF MEDICINE OF CLEVELAND

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2318 PROSPECT AVENUE

Entered March 7, 1902, as Second-Class Matter, Post-Office at Cleveland, Ohio, under  
Act of Congress of March 3, 1879.

Organized January 20, 1902 Capital Stock \$6,000

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## EDITORIAL

### Public Health in the New City Charter

The place of the health department in municipal government is a matter of the utmost importance. The preparation of a new charter for Cleveland gives an opportunity which should not be lost. Examination of the past and wisdom in building for the future ought to give Cleveland as nearly an ideal health department as it is possible to obtain. The tendency, of course, is toward the centralization of all activities in the mayor, toward making him responsible for whatever may be good or bad in his administration. We fall in quite readily with this modern tendency—except in so far as it applies to a municipal health department.

An efficient health department requires continuity of effort for its upbuilding. It must be free of every suspicion of petty politics if it is to receive the public spirited aid of those scientifically trained citizens best suited to give help. While the trend in municipal government is toward centralization in the mayor, the trend in health administration is in the opposite direction. Everywhere administration of public health by a single commissioner, who is chosen by a mayor and who *may be* a creature of the mayor, has been found unsatisfactory. Success in a mayor's administration of the ordinary affairs of a municipality is no guarantee of wisdom in his selection of a health commissioner. The greatest objection to a single commissioner lies not in his appointment by the mayor, but in the fact that it makes public health legislation difficult or impossible. Legislation by a board composed of directors of somewhat related departments offers no solution of this problem. Public health legislation must be by a board whose sole interest is public health. Such legislation, being for the greatest good of the majority, must often run counter to the desires of the individual; it must therefore be in the hands of those who can see beyond the individual and who cannot be influenced by any individual. If, in spite of accumulated evidence, Cleveland fails to write a board of health into its new charter, its home-rule toy may look pretty for a while but it will be weakest where it should be strongest.

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### The Emetic Action of Digitalis

Digitalis has been the subject of so many investigations, both in the laboratory and at the bedside, that one might suppose that there remained little to discover concerning its mode of action, but its study appears to present difficulties comparable to those relating to the organ upon which it is supposed to act chiefly.

We have been accustomed to regard the nausea and vomiting which sometimes follow the therapeutic use of digitalis and other members of the group as manifestations of the local action on the stomach, and many will be surprised to learn that any would question this seemingly well established fact. But two papers by Hatcher and Eggleston which have appeared recently (*Jour. Pharmacol. and Exper. Therap.*, 1912, *IV*, 113; *Jour. A. M. A.*, Feb. 15, 1913, p. 499) prove that our views on this subject require revision.



The authors removed the gastrointestinal tract of dogs under anesthesia, and after a few minutes injected moderate doses of the various digitalis bodies and found that vomiting movements resulted which were indistinguishable from those seen in the normal animal.

Since the operation prevented the possibility of the local action on the stomach or intestines, they conclude that the result must be attributed to the action on the vomiting center in the medulla.

In their second paper they have compared the relative emetic and cardiac activities of all of the more important members of the digitalis group and some of the better known specialties.

The results are interesting in that they show that true digitalin, which has been supposed to lack the emetic action, is relatively the most actively emetic of any of the preparations examined, digitoxin being relatively much less actively emetic.

Digalen, digipuratum, digitalysatum and the fat-free tincture of digitalis were quite as actively emetic in proportion to their cardiac action as the tincture of digitalis itself, and exceeding digitoxin in this particular.

The authors evidently are correct in their conclusion that the emetic action is essentially of central origin and therefore independent of the mode of administration, and hence it would seem to be not only useless to vary the mode of administration when the oral use causes gastrointestinal disturbance, but, on the contrary, such disturbances must be regarded, under ordinary circumstances, as the first signs of the toxic action of the drug indicating its withdrawal or a more guarded dosage.

Clinicians are especially cautioned against the use of opiates to control the gastrointestinal symptoms which digitalis induces, since this prevents the appearance of the warning symptoms of overdosage.

Professor Hatcher of Cornell University and his associate Doctor Eggleston have done a great deal during recent years toward the elucidation of digitalis action. Their present contribution is a noteworthy one and will go a long way towards putting digitalis medication on a scientific basis.

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**Fresh Air.**—The undertaker comes seldom to the house with open windows. A close room makes a close call. Ventilation in a room is as necessary as a roof. Keep the window open and the pill box stays shut.—(*Virginia Health Bulletin—Almanac.*)

### Governor Sulzer's Message on Public Health

That a Governor of a State should consider the question of public health as worthy of a message is in itself remarkable, but that he should appoint a Commission of unquestioned ability, for the investigation of the whole problem, and should then base his message on their report, is almost revolutionary. To all interested in public health, the message is of great importance, and if it bears fruit in the way of legislation incorporating the suggestions and recommendations, it will be a most encouraging and stimulating advance in sanitary efficiency.

The Governor was of the belief that the opportunities for the promotion of the health of the community were not being taken advantage of in a proper manner, and that much of the so-called health administration, especially in the smaller communities, was more or less of a farce. After a brief but active investigation, the Commission, headed by Doctor Herman Biggs, found this to be a fact, and offered twenty suggestions of far reaching importance. These may be readily grouped under a few heads. Security of tenure, adequate salary and suitable qualifications for Commissioner and other posts all along the line are strongly urged, and cogent reasons offered. Establishment of a Public Health Council with legislative but neither executive nor administrative powers, which shall establish necessary health regulations for all the State except New York City, and shall also establish qualifications for health officers and pass on them, is an essential part of the scheme. Definite duties for health officers are established, including among others the annual sanitary survey of their districts, as well as a constant sanitary supervision, the examination of all school children at the beginning of each year, inspection of schools and public buildings, enforcement of the public health law, etc. Additional hospitals for contagious diseases in general and for tuberculosis in particular are to be established and the administration in regard to these diseases is to be aided by the development of a staff of visiting nurses, while the whole control is to be in the last analysis under the State. Admission of written reports by health officials as presumptive evidence is a suggestion of great value, as well as the proviso that these officials shall be exempt from personal liability for their statements. The progress of public health from the domain of politics to that of science is emphasized by the demands on the one hand for the expansion of the research facilities of the

department and on the other hand by the encouragement of the establishment of special courses for men specializing along these lines. The demand for special training and the establishment of reasonable security in tenure should give the needed impetus for such courses, as one of the chief difficulties at present is that men hesitate to spend time and money to prepare for posts from which they may be removed for political reasons.

It is to be hoped that this advance in New York may be followed by similar advances elsewhere, and that efficiency rather than the friendship of the elected may become the standard for public health appointments.

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### Depend on the Council

Those who have closely followed the work of the Council on Pharmacy and Chemistry of the American Medical Association have recognized that this body has advised the medical profession with an unflinching certainty in regard to the new proprietaries. During its eight years of existence it has condemned many proprietary remedies and in every case later events have upheld this judgment. To those of our readers who have not regularly read the reports of the Council we would give another illustration of the Council's correct judgment.

About two or three years ago a new consumption remedy called "Dioradin" came to us from abroad with statements of the wonderful successes which Doctor Bernheim of Paris had obtained with it. While considerable favorable "literature" in regard to it had appeared in foreign and in American journals the Council on Pharmacy and Chemistry refused to recognize the product. Its report (*Jour. A. M. A.*, Oct. 26, 1912, p. 1556) called attention to the inconsistent and shifting claims which had been made both in regard to its composition and its action by the chief promoter, Doctor Bernheim. How fully justified the Council was in mistrusting the evidence submitted for Dioradin by Bernheim is made plain by the following account of Bernheim's connection with Dioradin which is taken from the "Paris letter" in the *Journal of the American Medical Association*, Feb. 22, 1913, p. 608:

In an interesting lawsuit light has been thrown on the methods of the promoters of Dioradin. For four years Doctor Louis Dieupart was head physician of the dispensary for the tuberculous established at Saint-Denis, at the head of which is

Doctor Samuel Bernheim. Bernheim discharged Dieupart for refusal to use Dioradin. Dieupart protested, on the ground of the inefficacy of Dioradin. At the trial he testified that Doctor Bernheim received a commission on all Dioradin used at the Saint-Denis dispensary.

We believe that physicians are fully justified in placing confidence in the judgment of the Council on Pharmacy and Chemistry.

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### The Then and Now of Newspaper Medical Advertising

In its issue of January 28, the *Cleveland Plain Dealer* printed an article on "Old Local Advertisers," by its historian of local affairs, Mr. W. R. Rose. In this comparison of modern newspaper advertising with that of seventy-one years ago, we find the following, under the subhead, "Forgotten Cures and Nostrums": "The greater part of the third page was taken up by medical ads, the matter consisting largely of boastful claims and doubtful recommendations. The nostrums which thus appealed to the forefathers were Dr. Starkweather's Hepatic Elixir, which was guaranteed to arouse the most sluggish liver, and 'Fish's Lily Syrup,' the best of all remedies for lung troubles. Other medicinal preparations advertised are the 'Conway Remedies,' the remedies and treatment of Dr. Berg, on St. Clair lane; the Comstock specifics, and the celebrated Adams' Welsh liniment. All these were noted remedies in their day, but despite their alleged curative value not one appears to have survived."

At the beginning of the article occurs the following: "Perhaps no better indication of the mighty advancement along trade lines can be found than in a comparison of the advertising methods and traditions of seventy-one years ago with present day publicity."

It is interesting to compare the medical advertising in the *Plain Dealer* of today with that of the first year of its existence, paying particular attention to the "advancement" which has been made.

We will find, first, certain interesting facts in regard to the distribution of modern "cures and nostrums" advertisements. The latter are no longer limited to the "third page"—or to any other single page; they show, however, tendencies to become grouped in the several sections of any Sunday issue. Thus, in the Woman's Section, one finds "Bust Developed One Ounce a

Day" and its antithesis, "The Slim Woman is Winning"—as well as others which tell "How Mrs. Brown Suffered," or that she or some other fictitious testimonial writer "Owes Her Life to Eckman's Alterative." Other advertisements, which tell how to keep hair on the head and how to remove its elsewhere, are also found here. Pimple and eczema cures, specifics for colds, "grip," indigestion, the drink habit and what not, are well scattered. "Consult Dr. Baker. Skillful, Competent; lady attendant" occupies an inconspicuous position; why, we can't imagine. The Sporting Section is appropriately reserved for "Big G", "Santal Midy", "rejuvenating, vitalizing Juven Pills", and those potent remedies which relieve the supposed ills "brought on by the follies of youth." It is not to be supposed that the position of any given advertisement or group of advertisements is a matter of chance. In connection with the predilection of the vulgar announcements relating to gonorrhoea and the alleged results of sexual excesses, the following from a recent editorial in the *Journal of the American Medical Association* is apropos:

"An insidious innovation has lately crept into the sporting pages of some of these papers. 'Old Dr. So and So' has gained space there to promise relief to boys and men in familiar terms. The evil of the suggestiveness of such advertisements is well appreciated (and the editor of the paper is sometimes most outspoken about it in another place). Their appearance on the page most read by boys and young men shows 'rare business acumen, but complete disregard of public decency'."

We are struck next by the increased amount of space devoted to medical advertisements. "The greater part of the third page" would no longer suffice; removal of all the medical announcements from a Sunday issue of today does not leave enough paper for the fabrication of a vest of the kind with which our wealthiest fellow-citizen is said to maintain his warmth. From the standpoint of the business manager we admit that the average newspaper of today shows "advancement" over that of seventy years ago.

But in regard to boastfulness of claims and doubtfulness of recommendations the "advancement" is not so apparent. Dr. Starkweather may have boasted about his "Hepatic Elixir"; Dr. Burkhart not only does as much for his "Vegetable Compound", but publishes his picture to prove that "Dr. Burkhart is Famous." The recommendations which made "Fish's Lily

Syrup' the best of all remedies for lung troubles" could not have been any more doubtful than those which attempt to persuade us of today that "Pinex" will "stop whooping cough quickly."

We regret that the "mighty advancement" of the *Plain Dealer's* historian has not been made apparent to us by our study of the medical advertising in that paper. We fail to see that the Augean stable of newspaper medical advertising has undergone any cleansing with the passage of time. When newspapers cease to print clap advertisements for our daughters to read and bust developer pictures for our sons to look at, we will feel that a beginning has been made in an herculean task.

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### Department of Therapeutics

Conducted by J. B. McGEE, M. D.

**Camphor:** James H. Heard and Richard Clyde Brooks, in the February number of the *American Journal of the Medical Sciences*, report on a clinical and experimental investigation of the therapeutic value of camphor. The profession has long felt the need of a more accurate knowledge in regard to the relative value of the several drugs employed as so-called "circulatory stimulants." As concerning the therapeutic value of camphor there has been so far rather more of speculation than of positive knowledge. Reports as to the clinical utility of camphor are apt to be unconvincing though often enthusiastic. There is nevertheless a widespread belief in camphor as an efficient "heart stimulant." Many competent practitioners still rely upon the drug as the best which can be employed in combating a sudden failure in cardiac force or impairment in vasomotor tone, or both. Moreover, one may find that the hypodermic use of camphor in oil is frequently resorted to in ambulance work, in the operating room and at the bedside, in order that an apparently impending circulatory failure may be averted. Extremely divergent views are held as to the dosage of camphor. Thus it appears that the customary hypodermic dose in America and England is about three grains, whereas in Germany the average dose is much larger. Heard and Brooks believe that care should be exercised in giving camphor to those patients who have a poor glycuronic acid content. This condition may be suspected in cachexia, in starvation, and in cases of carbon dioxid poisoning, of severe sepsis, of eclampsia, etc. The results of laboratory investigation strongly support the view that camphor is antagonistic to the depressing effect upon the heart of chloral and also of muscarin and strychnin. They conclude that in the clinical experiments, camphor injected subcutaneously in oil, in doses as large as fifty grains, failed to produce any definite effects. The variations in pulse and blood-pressure occasionally following the use of the drug were so inconstant as to make it probable that they had no relation to the medication employed. The failure of the drug to influence clinical fibrillation of the auricle in the human subject is only in apparent contradiction with their own and other laboratory observations, that perfusion of the isolated cat's heart with camphor may remove fibrillation and restore coordinate contractions. The explanation of this apparent discrepancy is probably to be found in the fact that the dose was greater in the perfusion experiments than was possible in the clinical observations and that in the former the condition of fibrillation in the normal heart was induced artificially. A further point to be considered is that different animal species and varying ages of even the same species show marked differences with respect to fibrillation. Therefore, while camphor may be an active agent in certain disorders in which there is an

abnormally small glycuronic acid content, and while experiments indicate that the drug exercises a favorable effect upon the heart muscle which is poisoned by chloral, muscarin or strychnin, nevertheless camphor should neither be relied upon as a cardiac stimulant nor feared as a toxic agent in the doses employed by them and under the conditions studied.

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**Sodium Chlorid:** A. L. Benedict, in the *Medical Record* for January 25, writes concerning the influences of sodium chlorid on hydrochloric acid secretion by the stomach. Since hydrochloric acid is formed from inorganic chlorids, it seems logical to assert that if the latter are absent in the ingesta the hydrochloric acid secretion will fail. But here, as in many other instances, certain practical qualifications must be borne in mind. As to the therapeutics in the narrow sense, he has almost invariably found that on a diet as nearly salt-free as possible, without special preparation of foods before they reach the cook, hyperchlorhydria abates. With a diet salt-free, except for the natural content of ordinary insipid foods, hyperchlorhydria does abate in the great majority of instances, although it tends to return if an ordinary salt-rich diet is taken. Nor does the fact that hyperchlorhydria or rather hyperchlorhydric exacerbations may occur when the diet is restricted in salt militate against the general clinical experience that such restriction, when thorough, does tend to reduce such exacerbations. We must not forget that hyperchlorhydria is merely a symptomatic term. The functional tendency is subject to almost absolute control, temporarily, by diet and other means, and recurrences can be treated as satisfactorily as in most diseases. But the patient, even when his stomach contents are reduced to normal acidity, is no more free from the underlying disease for which we have no term except the one which alludes to the fulminations, than a diabetic is free from diabetes because, under diet, his urine is free of sugar. There is no more reason to expect a cure of hypochlorhydria from administration of salt than of Addison's disease from administering adrenalin or of leanness from administering fat. In many cases of hypochlorhydria, a definite atrophy of the gastric tubules exists. In others there is a general failure of glandular functional capacity or a failure of innervation. And just as there are cases of anemia in which the blood will recuperate its hemaglobin if iron is furnished, so there are occasional cases of hypochlorhydria in which the moderate rational increase of salt, along with other appropriate dietic and hygienic measures, will facilitate the reestablishment of an adequate hydrochloric acid secretion.

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**Chorea:** The February number of the *Therapeutic Gazette* comments editorially on the best method of treating chorea. For many years, as every physician knows, arsenic given in ascending doses has been considered the remedy above all others for the cure of chorea. As a rule the doses ultimately reached must be large to produce any effect and these large doses expose the patient to arsenical neuritis, possibly to renal irritation, and to disturbances of the gastrointestinal tract. As time goes by it would seem that the profession is placing less confidence in arsenic in this disease, and Burnet and also Koplik have attacked the drug, on the ground that it is not particularly efficacious and is liable to do harm. Swift goes so far as to assert that by following this plan of treatment he has caused three cases of hemorrhage from the stomach, several of renal hemorrhage, and many of severe irritation of the conjunctiva, and Cabot also seems doubtful of the usefulness of arsenic. As the popularity of arsenic diminishes the availability of the salicylates has been more and more considered, chiefly on the ground that chorea is a rheumatic manifestation, or one closely allied to it, and many reports have been made of the good results which have followed the use of salicylates in controlling and finally curing the choreic symptoms. Fromm, in the *Albany Medical Annals*, thinks that all treatment in the way of drugs is futile unless rest is insisted upon. He has found aspirin the best form

of the salicylates and reports a number of cases in which benefit followed its use. He admits that the number of his cases does not justify positive conclusions as to the efficiency of the salicylates in chorea, although in each instance they were rheumatic in type. Nevertheless, he is ready to assert that as the salicylates are practically specific in acute rheumatism, it would seem that we can conservatively say that they are at least useful in the majority of choreic cases, and while chorea is said by many to be a self limited disease, he still claims that the salicylates shorten its course materially.

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**Squill:** *The New York Medical Journal* for February 22 states that A. Pic and S. Bonnamour have ascertained that squill, while increasing the amount of urine excreted, favors especially the elimination of urea. It is therefore particularly indicated in nephritis where there is retention of an excess of nitrogen. They publish their observations in the *Press Medicale* for December 18, 1912. Accordingly, its administration should no longer be empiric in all cases of dropsy, but should be based on an examination of the urine for signs of urea retention. The best form to use is powdered squill, given in cachets of 0.15 gram each, of which three or four are exhibited daily; the total amount may be increased to as much as 0.8 gram (12 grains) a day. No harmful effect was observed on the renal parenchyma, and the albuminuria either remained stationary or was diminished. Where urea and chlorin retention coexist, squill and theobromin should be given together; here the addition of the squill will remove the edema where theobromin alone may fail. In dropsy of cardiac origin, urea retention is in certain cases the predominant condition; here the action of squill will supplement the cardiovascular and chlorin eliminating action of digitalis. In the normal subject, squill causes a much greater increase in the urea elimination than in the amount of urine. The effects of squill are ascribed by the authors to a selective action on the renal secreting cells.

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**Chronic Nephritis:** In the February number of *Merck's Archives*, Carl von Noorden presents the treatment of chronic nephritis, stating that as regards rest and exercise that it is only in cases with edema that it is customary and beneficial to order a complete rest cure for the patients. It is not necessary and not advisable that they remain constantly in bed. In all other forms of chronic nephritis a certain amount of exercise should be allowed under all conditions. The muscles should be exercised and strengthened and one should not be deterred from this even if at the start albuminuria increases somewhat. Usually this is only transient. Even if it should recur repeatedly, too much weight must not be attached to it, as the denial of all bodily exercise will have more serious consequences for the entire organism than a trifling increase of the albuminuria. The occurrence of blood in the urine is the only thing compelling us to deny any exercise at all. We shall also in most cases have to allow the patient to attend to his business, provided that this does not entail great bodily or mental fatigue. Overexertion is of course to be avoided, not only to protect the kidney, but particularly to avoid danger to the heart, the sheet-anchor of the nephritic. As to diet, chronic nephritis presents us with different indications from those of the acute form. Any treatment which results in a weakening of the general condition may be discarded at the start, and this point he emphasizes. Frequently so much is forbidden that the patient cannot maintain or increase his strength with the meagre allowance given. When he says that the physician must see to it that the patient with chronic nephritis is well and sufficiently nourished, this must not be taken to mean that he should be overfed or allowed to become fat. On the contrary, any considerable gain in weight is harmful to the nephritic on account of the danger of cardiac weakness through obesity. We should limit the proteins, giving enough, however, to guarantee the maintenance of bodily strength. As to water intake, he first pointed out, about twelve years



ago, that patients with chronic nephritis as a rule drink too much water and that this abundant intake of fluid is almost as injurious as it is in cardiac cases. Experience teaches that a wise restriction of the fluid intake is one of the most certain methods of lowering the blood-pressure; and experience further teaches us that the strength of the heart improves considerably as soon as the water intake is restricted. Occasionally, as a result of these methods alone, one sees a greatly dilated heart return to a normal size. The restriction of water is particularly important and of value in those cases of so-called vascular contracted kidney, which is by far the most common form. If on the other hand, one is dealing with a case of marked so-called secondary contracted kidney (a much less frequent and much more dangerous form), one must allow a large amount of fluid, that is, about two liters in twenty-four hours. One can do this all the easier because in this form the heart is much less endangered than in the other form. The greatest danger here is the retention of the products of metabolism.

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**Sulphur:** A. W. Brayton, in the February number of the *Indianapolis Medical Journal*, states that the danger of powders to the face is greatly overestimated, and he advises the addition of precipitated sulphur, which has noted medicinal value, to any favorite powder that the patient wishes to use in the proportion of one to four. This is a fine powder for young women who are troubled with acne vulgaris, or for older people with rosacea. At night they may dab their faces with the "white lotion" of the skin books, made by dissolving two drams each of zinc sulphate and of sulphide of potassium in twelve ounces of rose water. Precipitated sulphur is formed in this lotion, and also some potassium sulphate, and an abundance of hydrated zinc sulphide. Hardaway says this is the most generally useful form of sulphur in acne. Precipitated sulphur may also be used in ointment of rose, the cold cream of the druggists, in the proportion of one dram to the ounce. Sulphur so used, and used as a simple powder as stated, forms the most efficient treatment of ordinary acne of developing young men and women and of boys and girls, which the author knows. Diet is not of much importance, while internal medication amounts to little unless there are marked deviations from good health. Properly selected vaccines are frequently promptly efficacious, but great reliance is placed upon the sulphur treatment, which may be kept up just the same as though no vaccines are used. An ointment of one ounce of cold cream, one dram of precipitated sulphur, and thirty grains of salicylic acid is excellent treatment for dandruff in the scalp, when well rubbed into the scalp with the finger tips once a week. However, when dandruff or seborrhea is established in the scalp, an alcoholic lotion should be used. Isidore Dyer says that bay rum and resorcin, 2 to 3 per cent, will cure any case of dandruff if persistently applied and if the victim will keep away from dirty barbers. As to the sulphur powder, it is the best treatment for scabies, a teaspoonful dusted over the entire body after thorough washing, and no ointments are necessary. No other single drug is so efficacious in the treatment of skin diseases as sulphur and its compounds.

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**Asthma:** In the *Critic and Guide* for January, Solomon Solis Cohen treats of some unfamiliar methods in the treatment of asthma. Asthma is a symptom, one might perhaps say a symptom complex. It is not a nosological entity; that is to say, a distinct affection of a special organ or tissue. In certain cases we can recognize the underlying lesion or functional disturbance, and in other cases we cannot. In his article he states that he refers to certain types of paroxysmal dyspnea, and not to something else that may be miscalled asthma. Two common varieties may among others be recognized, one associated with bronchial spasm and the other with angioneurotic edema of the bronchial mucous membrane. In both varieties, the hypodermic use of epinephrin preparations

(about 20 minims of a 1 to 1000 solution of adrenalin chlorid, suprarenalin, suprarenin or supracapsulin, etc.) will give immediate relief. In the spasmodic variety, it may endure for quite a while, but in the other it is often disappointingly transient. In both, the series of paroxysms may be broken up by the intramuscular injection at bedtime for three successive nights of a solution of scopolamin hydrobromid, 1/200 grain; codein or morphin hydrochlorid, 1/6 to 1/2 grain; strychnin nitrate, 1/30 grain; and water 20 to 30 minims. To prevent recurrence, or to keep the patient comfortable during the intervals between the injections, in most cases there is nothing equal to the use of aspidospermin, one of the active principles of quebracho. The dose depends upon the preparation and the patient; one teaspoonful (4 ccm) of the fluid extract of quebracho hourly is usually efficacious, provided the patient is able to take it. It often provokes intense nausea, and for that reason the alkaloid must be used instead. The amorphous aspidospermin, which is a mixture of various quebracho bases, may be obtained, the dose being from 0.06 to 0.1 gram (1 to 1.5 grains). Aspidospermin, Fraude-Merck (crystalline), is to be obtained and the dose is stated to be from 0.001 to 0.002 gram (1/60 to 1/30 grain). He has been in the habit of giving it in five or six times this quantity. The sulphate of this may be used hypodermically in doses of 1/60 to 1/30 grain. As a rule it is best to give the drug in small doses hourly, in larger doses at intervals of two, three or four hours.

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### New and Nonofficial Remedies

Since publication of *New and Nonofficial Remedies, 1912*, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

Sodium Glycerophosphate (sodii glycerophosphas) is hydrated sodium glycerophosphate, containing not less than 99 per cent of hydrated sodium glycerophosphate. It is crystalline, quite soluble in water, but insoluble in alcohol. Its properties and dosage are similar to those of calcium glycerophosphate (See *N. N. R.*, 1913, p. 118).

Sodium Glycerophosphate, Monsanto, is a nonproprietary article and complies with the tests laid down for sodium glycerophosphate. Monsanto Chemical Works, St. Louis, Mo. (*Jour. A. M. A.*, Feb. 8, 1913, p. 442).

Vacules Digital contain digitol 30 ccm in sealed ampules. The air in the container is removed before sealing, whereby, it is claimed, deterioration of digitol is retarded (*Jour. A. M. A.*, Feb. 8, 1913, p. 442).

Hediosit is the lactone or inner anhydride of alpha-glucoheptonic acid. It is an odorless powder having a sweet taste and is readily soluble in water. When given to diabetic patients hediosit is said not to increase the amount of glucose in the urine. It is claimed to have a food value equal to the same amount of glucose. It is said to be useful as a sweetener of the food for diabetic patients Farbwerke-Hoechst Company, New York (*Jour. A. M. A.*, Feb. 15, 1913, p. 516).

Isatophan is methoxy-atophan, 8-methoxy-2-phenyl-quinolin-4-carboxylic acid. It is a powder insoluble in water, tasteless, and has a slight odor. Its actions, uses and dosage are the same as for atophan. It is also sold in the form of isatophan tablets, each containing 0.5 gm isatophan. Schering and Glatz (*Jour. A. M. A.*, Feb. 15, 1913, p. 516).

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**Specialism.**—The refinement of specialism leads to narrowed efficiency and thence to the vanishing-point of practical effectiveness. Too close concentration will lead to elimination. Let the narrow specialist know his limitations and keep to his place. As the *Press and Circular* says, "His opinions should be treated gravely as such and not as absolute, proved facts. He makes an excellent servant but a bad master."—(*J. A. M. A.*)

## Academy of Medicine of Cleveland

## ACADEMY MEETING

The ninety-eighth regular meeting of the Academy was held at the Cleveland Medical Library, Friday, February 21, 1913, the President, H. L. Sanford, in the chair.

The program was as follows:

1, Tumor in the Cerebellopontine Angle; Report of a Case, by A. W. Lueke.

Tumors of the cerebellopontine angle usually come from the connective tissue of the nerves originating from the pons and medulla. They vary in structure, gliofibromata, fibromata and sarcomata having been reported. The symptoms usually begin with such as are referable to involvement of the eighth nerve; later other nerves may become involved. Symptoms of pressure are generally early. Cerebellar ataxia may supervene. The prognosis, if the tumors are left alone, is bad. Because the patients usually come after there are serious changes in the involved nerves, even operation cannot be expected to give perfect functional return. In the case reported the symptoms began eight years ago, becoming quite marked in January of 1912, when a temporal decompression operation was done for the relief of the pressure symptoms. Following this operation a cerebral hernia developed. There was temporary relief from the more severe manifestations and the optic papillitis improved somewhat. Soon, however, the symptoms again became marked, vision was greatly impaired and the gait became very ataxic. The first, fifth, seventh and eighth nerves were involved; there were no symptoms referable to other nerves, except pains in the region of distribution of the spinal accessory. From the symptoms a diagnosis of tumor in the cerebellopontine angle was made. The tumor was enucleated in a two-stage operation, the patient being discharged from the hospital in three weeks with no reaction except a slight palsy, which has since almost disappeared. The eye grounds have improved and the cerebral hernia has almost disappeared. The gait is still somewhat broad, but not ataxic, the patient having been enabled to return to work. Microscopic examination showed the tumor to be a fibroma. (To be published in full.)

C. E. Briggs, in opening the discussion, said that tumors of the kind reported give perhaps the best operative results of all cerebral tumors. It is interesting that the primary temporal decompression gave temporary relief, since some have doubted that relief is to be obtained in subtentorial tumors from temporal decompression.

W. C. Tuckerman said that he had seen the patient first because of impairment of vision. There was marked papillitis and the ataxic gait was striking. There was improvement after decompression, but later all the symptoms returned. Since the operation for the removal of the tumor the papillitis has decreased to such an extent that the disc can be readily outlined; vision is now practically normal in both eyes.

G. W. Crile said that the decompression had been done to control the marked pressure symptoms. The improvement in the patient's condition now as compared with that before the operation was most striking.

A. W. Lueke, in closing, doubted that an occipital decompression would have offered any greater relief from the pressure symptoms than the temporal decompression which had been done. The latter undoubtedly made the operative removal of the tumor easier.

2, The Surgical Treatment of Cleft Palate, by J. H. Jacobson, of Toledo.

Treatment of congenital cleft palate presents such great technical difficulties and often leads to such unsatisfactory results that the unfortunates are not welcomed by the general surgeon. Properly operated at an early age the results should be good. Supernumerary teeth in the premaxilla are usually associated with cleft palate and it has been suggested that they may cause the condition in a mechanical way during fetal development. All forms of cleft palate can be closed if the proper

operation is performed as early after birth as possible. When done early the operation is easier and later development proceeds in a normal manner; furthermore, the functional results are better than when the operation is performed later in life. There have been devised many operations for the closing of the cleft, from simple denuding of the edges and suturing to the forming of complicated flaps of bone and soft tissue. The von Langenbeck operation, either in its original form or in some one or other of its modifications is used by most operators. Of recent years the Lane operation has been much used. Whatever the operation used, to be successful it must close completely the cleft in the soft and hard palate, and it must do this without leading to the formation of too much scar tissue and without shortening the soft palate. A disadvantage of the von Langenbeck operation is that at times there is not enough tissue to bridge the defect. Preparation of the patient for operation is of the utmost importance. The patient should be kept on a sterile diet for several days and antiseptic mouth washes and sprays should be used. Ether is the anesthetic of choice. In the aftertreatment the mouth must be kept as sterile as possible. After healing there must be careful training in speech and phonation. (To be published in full.)

G. W. Crile, in opening the discussion, believed that the von Langenbeck method is the operation of choice. In the Lane operation there is not enough elasticity and too much scar tissue may be formed.

C. E. Briggs said that it had always been his custom in doing the von Langenbeck operation to make the incisions longer than those illustrated by Doctor Jacobson, feeling that more space could be gotten in this way. He asked whether there was any particular reason for the shorter incision.

J. F. Stephan felt that one of the objects to be sought was proper feeding, that this was even more important than proper speech. He thought that perhaps what had been called supernumerary teeth are not really supernumerary, but only malformed and malposed lateral incisors.

F. M. Casto said that the value of early operation is to be emphasized. In some cases orthodontic measures might help in decreasing the defect to be closed; in every case, even after operation, such measures should be applied to bring about proper occlusion of the teeth.

J. H. Jacobson, in closing, said, in regard to the question of supernumerary teeth, that in the case of his which had been especially studied from this standpoint the normal number of teeth could be identified, but that supernumerary teeth were present in the premaxilla. In the von Langenbeck operation it was his custom to make the lateral incisions as short as possible.

3, Diagnosis of Lesions of the Upper Urinary Tract, by Hugh Cabot, of Boston.

We have now at our disposal methods which make for great accuracy in the diagnosis of lesions of the upper urinary tract. Unfortunately correct diagnoses are not often enough made because the proper diagnostic measures are not applied. Too frequently there is made a diagnosis of cystitis, which in the majority of cases is really only a symptom of some lesion higher up. Examination of the urine, alone, in and of itself is of little value. In the diagnosis of lesions of the upper urinary tract use must be made of functional kidney tests and of the X-ray, the latter both alone and combined with the use of the stylet catheter or with collargol injection of the ureter and renal pelvis. In the interpretation of X-ray findings phleboliths in the pelvis must be borne in mind. In the detection of malpositions of the kidney, which may cause typical renal colic because of kinking of the ureter, the X-ray examination after collargol injection is of the greatest help. In both malpositions and calculus it should be the aim to detect the lesion through the use of proper diagnostic measures before there has occurred any very great destruction of renal tissue by hydronephrosis.

W. E. Lower, in discussion, said that he who operates in cases of renal colic with the expectation of finding a stone will be disappointed in a large percentage of cases. Blood clots or abnormalities in the ureter or blood

vessels may give typical symptoms of renal colic. Undoubtedly many cases considered chronic appendicitis are really cases of ureteral involvement. The patient should be given the benefit of all diagnostic aids before being subjected to operation; the latter should not be done on symptoms alone.

J. H. Jacobson had also experienced the confusion which may be caused by the shadows of phleboliths on the X-ray plate. In regard to the case of wandering ureteral stone mentioned by Doctor Cabot, he had seen a case in which the stone several times returned to the pelvis of the kidney. He asked in regard to the diagnostic value of injections of the renal pelvis for the purpose of reproducing symptoms, and also in regard to the degree of pelvic dilatation which the speaker would consider an indication for operation. He agreed that renal colic simply means increased tension and that the actual cause of this must be found before operation is attempted.

W. E. LeFevre called attention to the value of stereoscopic X-ray plates in clearing up some of the doubtful points which had been mentioned.

Hugh Cabot, in closing, agreed as to the value of the stereoscopic X-ray plates. He believed that the surgeon, rather than the X-ray man, is to be blamed for misinterpretations. In regard to the value of the reproduction of pain by distension of the renal pelvis by injection, he felt that the kidney could be considered the cause of the symptoms if the distention brings on immediately the same sort of pain of which the patient has complained. In regard to the indications for fixation of the kidney, he believed that unless there is damage to the kidney as evidenced by dilatation of the pelvis, if there is only moderate pain without such dilatation, operation is not indicated.

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#### EXPERIMENTAL MEDICINE SECTION

The sixty-fifth regular meeting of this Section was held at the Cleveland Medical Library, Friday, February 14, 1913, the Chairman, O. T. Schultz, in the chair.

The following program was presented:

1, The Effects of Aortic Compression on the Vasomotor Center, by Torald Sollmann (published in full on page 163).

2, The Influence of Lipoids on Hemolysis, by J. D. Pilcher (published in full on page 182).

3, The Effects of Successive Ligation of the Renal Arteries on the Nitrogen Balance, by J. D. Pilcher.

Following excision of segments of kidney tissue Bradford had claimed that there is an increased output of nitrogen (as urea), and had interpreted this finding as indicating that the kidney has an influence on nitrogenous metabolism. Other observers were not able to confirm these statements, but attributed the increased nitrogen output to inanition. In order to investigate this point kidney tissue was thrown out of function by successive ligations of the renal arteries in a cat and a dog. As was determined at autopsy, the ligations led to complete atrophy of the kidney tissue supplied by the ligated vessels, so that the ligation of the final vessel was followed by death in each instance. In both animals the nitrogen excretion remained practically normal. In the cat, the third ligation, which threw three-fourths of the kidney tissue out of function, was followed by a period of loss in weight. During this period the nitrogen output greatly exceeded the intake; this was due to inanition, since the nitrogen excretion again returned to normal as soon as the animal gained in weight. From the experiments it is concluded that practically one-fourth of the original amount of kidney tissue was able to secrete urine almost as effectively as the total renal substance. (To be published later.)

4, The Toxic Dose of Salicylates According to Clinical Statistics, by P. J. Hanzlik.

The study of the toxic and therapeutic effects of the salicylates was based upon an examination of the records of the medical service of the Lakeside Hospital, the records of some 400 patients, who had received salicylates, being used. The mean toxic dose of the various salicylates for males and females respectively was found to be as follows: synthetic sodium salicylate, 180 and 140 grains; "natural" sodium salicylate, 200 and 135 grains; oil of gaultheria, 120 minims; aspirin, 165 and 120 grains; diplosal 120 and 83 grains. The therapeutically effective dose for the salicylic esters is smaller than that of sodium salicylate, the efficiency of diplosal being about twice and that of aspirin and methyl salicylate about one and two-thirds that of sodium salicylate. Comparison of the toxic doses for males and females showed that the toxic dose for the latter is about 80 per cent that of the former. The toxic dose of synthetic sodium salicylate for the majority of males and females lies between 100 and 200 grains. Age above 16 years and color have no relation to the toxic dose. The therapeutic efficiency of sodium salicylate was found greatest in acute rheumatic fever, 82 per cent being cured. In subacute rheumatic conditions the percentage of cases relieved was 41 to 53. In sciatica no complete relief was obtained, but 71 per cent of the patients showed more or less relief. In regard to the salicylates as a possible factor in the causation of albuminuria, it was found that the latter phenomenon was much more frequent in febrile than in afebrile cases, suggesting that the fever is the more important factor. In those cases in which the toxic doses lay below or above the mean of 100 to 200 grains, no relationship could be attributed to race, sex, age, or disease condition. The idiosyncrasy may vary in the same patient. There was no demonstrable habituation to synthetic sodium salicylate. (To be published in full.)

#### 5, The Intestinal Absorption of Alcohol, by P. J. Hanzlik.

Previous investigations into the absorption of phenol and sodium iodid from the intestine had shown that the absorption goes on rapidly for a time and is then checked. A similar phenomenon was found to occur in the absorption of alcohol. At the end of one-half hour there is an arrest of absorption, this being independent of the total absorbed, which varies from 33 to 85 per cent. This inhibition is not due to local action, because preliminary treatment of an intestinal loop with alcohol does not inhibit subsequent portions of alcohol. Intestinal absorption of alcohol is diminished after the intravenous injection of alcohol, indicating that the inhibitory effect is systemic, but it was shown to be not due to changes in the systemic blood-pressure. (To be published in full.)

#### 6, Demonstration of Tests for Free Formaldehyde and Urotropin, by P. J. Hanzlik.

In order that the therapeutic value of urotropin in any given case may be determined it has been suggested that tests for free formaldehyde and urotropin in the urine should be applied in every case where this drug is used. The value of the newer tests which have been devised, and which were demonstrated, lies in the fact that they permit the detection of free formaldehyde actually present and are not dependent upon the formation of formaldehyde from the urotropin, which may be present, through the reagents used.

Jorissen's test for free formaldehyde: To the urine add a pinch of phloroglucin (dry) and sufficient 10 to 20 per cent sodium hydroxide to make alkaline. A red color results. This reaction will detect formalin in water in dilutions as high as 1 to 10,000,000.

Arnold-Mentzel test for free formaldehyde: To the urine are added 3 drops of a 0.5 per cent solution of phenylhydrazine hydrochlorid, 2 drops of a 5 per cent solution of sodium nitroprusside, and 3 drops of a 10 to 20 per cent solution of sodium hydroxide. A blue to green color results. This test is not so sensitive as the above, the reaction occurring in dilution of 1 to 800,000, but it is preferable because the resulting color is more easily detected in highly colored urines; it may also be used when the urine is blood tinged.

Bromin water test for urotropin: The addition of a saturated solution of bromin in water to urine containing urotropin gives a yellowish precipitate.

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## OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The sixty-fourth regular meeting of this Section was held at the Cleveland Medical Library, Friday, February 28, the Chairman, C. C. Stuart, in the chair.

The program was as follows:

1, Report upon and Presentation of Cases of Congenital Cataract, by L. K. Baker.

A report upon six cases illustrating varieties of incomplete congenital cataract. Case I was first examined six years ago, when four years old. Fingers could be counted with the involved right eye, the white spot in which had been noticed from birth by the parents. A fundus reflex was present on the temporal side of the cataract, which left a narrow crescent of clear lens. Some time after this she had an attack of severe pain in the head and eyes for three days. When seen again the cataract was complete, the tension was rather high and there were extensive posterior synechiae. At the present time the eye gives no response to light tests.

Case II shows a small anterior polar cataract of the right eye, the vision of which is 20/100. Case III, a girl of 13 years, shows a posterior polar cataract of the left eye, with remains of the hyaloid artery extending backward and downward. In Case IV, a girl of 15 years, the stellate cataract in the left eye looks like hair lines extending in three directions from the center of the anterior pole of the lens. Case V was first seen in 1899, the patient then being 8 years old. The cataract of the right eye was stellate in character; in 1907, when the patient was seen again, it had become coralliform. The left eye exhibited a large anterior polar cataract, the center of which was cupped and extended so far through the lens that it might also be classified as an axial cataract. Case VI, aged 22 years, had been operated for a cataract of the right eye ten years ago, a leukoma resulting. The left eye contains a lamellar cataract about which there is a rim of clear lens when the pupil is dilated.

Leo Wolfenstein, in discussion, asked as to the advisability of doing an iridectomy upon the left eye in Case VI, with needling later if there was not sufficient clear space in the lens.

L. K. Baker felt that it was inadvisable to operate the left eye, the vision of which is 1/10, in view of the bad results that followed operation on the right eye.

C. C. Stuart suggested that the untoward result may have been due to an infection by organisms present in the eye before the operation was undertaken. It would be advantageous to have in every case complete bacteriological and pathological examinations before operations upon the eye.

Leo Wolfenstein called attention that some cases of anterior polar cataract may be the result of ophthalmia neonatorum, with perforation of the cornea at the center, the rest of the cornea later clearing up.

S. H. Monson asked in regard to calcification in congenital cataract. He had seen several cases in the school for the blind and wondered whether the calcification could have been associated with a choroiditis.

C. C. Stuart said that in the cases of persistent hyaloid artery seen by him the artery has originated from the nerve head. He had never seen one like that in Case III, so far anterior in the vitreous just posterior to the lens.

2, An Unusual Symptom of Eyestrain, by Edward Lauder.

Report of a case in which a slight refraction error was associated with marked nystagmus. The patient, a man of 42 years, complained of persistent backward jerking of the head. The condition was first noticed in August of last year; it came on gradually and has been growing

worse. The jerking was greatest when vision was directly at some object. By placing the hand on the head the nodding could be controlled, but there was no compensatory movement of the eyes. The eyes showed only very slight abnormality, so slight that it was not believed that it could have anything to do with the head movements. Correction of the small error was followed by cessation of the nodding movements; the latter return when the glasses are left off.

Leo Wolfenstein mentioned a patient of 60 years, who finds it difficult to restrain nodding movements of the head when at the theatre or when looking at moving pictures; it seemed possible that this might be a condition similar to that reported.

#### CLINICAL AND PATHOLOGICAL SECTION

The ninety-second regular meeting of this Section was held Friday, March 7, 1913, the Chairman, W. H. Merriam, in the chair.

W. H. Humiston presented a specimen of uterine myoma and ovarian cystoma. The former was attached to the fundus of the uterus. The ovarian tumor, about five inches in diameter, was bound down by adhesions and could not be removed until the fundus of the uterus with its tumor had been amputated.

J. J. Thomas presented the X-ray plate from a case of congenital absence of the femur. At the birth of the child the breech presented and the condition of the leg led to the belief that the femur had been fractured or dislocated during delivery. X-ray examination showed complete absence of the entire femur. The child is syphilitic and the mother has a strongly positive Wassermann reaction. Complete absence of the femur is a rare condition, only three previous cases having been found in the literature examined.

The regular program was as follows:

1, Report of Two Cases of Roentgen Ray Treatment of Enlarged Thymus, by C. W. Wyckoff.

In the first case reported, a child seven months old, there had been difficulty in breathing since the age of three months. There were frequent attacks of coughing and the breathing was almost constantly wheezing, the latter character being more marked when the child was lying down. The child was well nourished. The superficial lymph nodes were moderately enlarged. The thymus gave no increased dulness upon percussion. The X-ray showed an increased shadow in the thymus area. The child received eight Roentgen ray exposures, which led to complete relief from the earlier symptoms. At twenty-two months the child is apparently completely well.

In the second case, a child of eight months, there had been difficulty in breathing, which was worse at night, since birth. The child was undernourished, the lymph nodes and tonsils were enlarged, the spleen was not palpable. There was increased dulness in the thymus region on percussion. The child received three Roentgen ray exposures during a period of six weeks, with immediate improvement and final complete disappearance of symptoms and good gain in weight.

In a third case, still under treatment, there was marked cyanosis when the child was on its back. The thymus dulness extended to 2 cm beyond the sternal margin in the first and second interspaces. There was marked relief after three exposures, but the treatment is not yet completed.

The time of the exposures has been 5 to 8 minutes, with the tube at a distance of 18 inches from the body.

In so-called status lymphaticus the enlarged thymus may be associated with generalized lymphoid hyperplasia; in other cases the thymus alone is enlarged, the finding being made at autopsy. The role of the enlarged thymus in the causation of sudden death has been a matter of considerable controversy, but the tendency of recent observations makes the enlarged thymus responsible by obstructing the trachea. Where there have been no previous attacks of thymic asthma, death may be due to a sudden



hyperemia of the thymus brought about by a variety of conditions, or to the wedging of the thymus back of the sternal notch when the head is thrown back. The asthma may be intermittent or continuous. Respiratory stridor is usually continuous, but at times may become very slight. The asthma becomes much worse during attacks of pain, anger or other emotion which leads to hyperemia of the structure. Percussion of the thymus is very difficult and unsatisfactory, because the limits of dullness can not be exactly determined. The X-ray offers considerable help, but the important dimension, the anteroposterior, cannot be shown. During acute infections the enlarged thymus may undergo some decrease in size, a point which helps in the differential diagnosis in cases with pressure symptoms in pulmonary infections.

Experimental work has shown that the Roentgen ray causes rapid involution of the thymus, the thymic tissue being replaced by connective tissue and fat. Such experimental findings are borne out by the results obtained clinically. Regeneration of thymic tissue seems to be possible after Roentgen ray treatment, so that in some cases a later course of treatment may become necessary. It is best to stop the Roentgen ray treatment before the symptoms have entirely disappeared, since complete fibrosis of the thymus in a young child might lead to those conditions which have been found to follow thymectomy or absence of the thymus: maldevelopment of the osseous system, poor nutrition and nervous system symptoms. (To be published in full.)

W. E. LeFevre, in discussion, said that the results of the treatment appeared so striking as to have diagnostic value in cases of suspected enlarged thymus. The effect of the Roentgen ray upon glandular tissues is well established. In the exposures proper penetration must be provided for.

A. F. Furrer said that untoward manifestations may occur at any time in persons with enlarged thymus. Because of this fact the clinician should use the greatest care in trying to make a diagnosis of enlarged or persistent thymus.

J. J. Thomas asked whether the speaker had tried the method of percussing the thymus with the child in the prone position; it has been claimed by Jacobi that this procedure aids in mapping out the thymus.

C. W. Wyckoff, in closing, said that he had tried the method suggested by Jacobi, but without success. Most pathologists disagree with Jacobi in the latter's belief that the thymus swings free in the thoracic cavity so that its falling against the sternum in the prone position would make percussion easier. The thymus seems to be bound down too firmly to the mediastinal tissue and to the pericardium to permit of such great mobility.

## 2, Review of Anterior Poliomyelitis, by O. L. Goehle.

Although the history of poliomyelitis covers a period of seventy years, it is during the past eight years that the disease has become one of the most important of the infectious diseases. In 1908 Landsteiner succeeded in transmitting the disease to monkeys by experimental inoculation, and in the following year Flexner was able to transmit the disease from monkey to monkey. An immunity is obtained in monkeys, but this knowledge has not yet been made therapeutically applicable to human beings. The serum of recovered human beings and monkeys has protective but not curative properties. The virus is filterable. The virus is present in the mucosa and in the secretions of the upper air passages; this is true of the abortive as well as of the acutely ill cases. Apparently healthy persons have been found to harbor the virus, and in them as well as in recovered cases it may persist for a long time. It may remain virulent for a period of thirty-one days in sterile milk or water. It is very resistant to drying, especially when protected by an albuminous envelop, such as is offered by dried sputum or nasal secretions. The work of Rosenau indicates the possibility of transmission of the virus from one monkey to another by means of the stable fly. Dust seems to be an important factor in the spread of the disease. The epidemic inci-

dence is greater in more sparsely inhabited suburban and rural localities than in cities; the explanation of this is said to lie in the fact that the disease is endemic in cities and that the majority of city dwellers are immune from abortive attacks.

Poliomyelitis is an acute general infection, with special injury to the central nervous system and considerable reaction upon the part of the lymphoid tissues. The localization of the nervous lesions is determined by the vascular supply. The entrance of the virus would appear to be through the upper air passages and especially through the nasal mucosa. The symptoms are extremely variable because of the many possibilities of localization in the central nervous system. Many attempts have been made to classify the disease clinically according to the symptoms. The simplest classification is that which divides the cases into the abortive ones without paralysis; those with involvement of the upper motor neurones, leading to spastic paralysis; and those with involvement of the lower motor neurones, the bulbospinal type. The severity of the prodromal symptoms is no key to the occurrence or the severity of subsequent paralysis. The earliest and most constant prodromal symptom is fever, which may return to normal shortly after the paralysis appears. Pulse and respiration are increased. Drowsiness may be marked; in other cases there is nervousness and excitability. The hyperesthesia may be local or general. Stiffness of the neck is frequent, retraction of the head rare. The behaviour of the tendon reflexes is variable; their examination from time to time is important because changes may occur. A positive diagnosis is not possible during the prodromal stage, and yet it is extremely important to make the diagnosis during this stage. Paralysis may occur during the height of the prodromal stage, or after the subsidence of the more severe earlier symptoms. A variety of muscle groups may be involved in the paralysis. The prognosis must be guarded, both as to a fatal outcome, because of the possibility of involvement of the phrenic and intercostal nerve centers; and as to the subsequent paralyses. Treatment, to be of avail, must be applied during the prodromal stage. Of the greatest importance is prophylaxis, through quarantine, prevention of dust, screening, etc. Massage, early and persistent, beginning after the disappearance of pain, is important, since there may be considerable return of function in the paralyzed muscles even after a year.

H. J. Gerstenberger, in discussion, emphasized the great value of massage in overcoming the paralyses or contractures. There may be marked recovery even after the paralyses have existed for two years.

O. L. Goehle, in closing, called attention to the possibility that neuropathic taints in the parents may make children more susceptible to the disease.

3, Finkelstein's Classification of Nutritional Disturbances and the Indications for Casein Milk Feeding, by H. J. Gerstenberger.

The older classifications of infantile nutritional disturbances were based upon supposed pathological changes, which were not always found to be present at autopsy. Next came the classification according to the stool picture. Important was the finding of Czerny and Keller that even clean food may cause nutritional disturbances, and this led to Czerny's classification of the nutritional disturbances into those due to improper food, to infection, and to abnormal constitution. Such an etiological classification is theoretically the best, but for practical purposes is not so good as Finkelstein's classification, which is a clinical one. According to Finkelstein every normal child reacts in the same way to food. The cases of abnormal or disturbed nutrition he divides into: I, The stage of disturbed balance. The weight curve is at first normal, then shows a stage of slight rise, and finally becomes horizontal. The temperature is at first normal, then becomes subnormal. The stools are normal, then constipated. II, The stage of dyspepsia. The weight curve runs as in the first stage. The temperature is normal, then subfebrile. The stools, at first normal, become diarrheic. III, The stage of decomposition. The weight curve is at first normal, then shows a period of no gain, and finally

a loss, the temperature becoming quite markedly subnormal during the latter period. The stools are variable. IV, The stage of intoxication. The weight curve, at first normal, shows a sudden decrease. The temperature, which is at first normal, shows a sudden rise at the point where the weight curve drops. The stools are normal, and then become diarrheic with the drop in weight. Combinations of the third and fourth stages may occur. It has been shown that various food factors may produce the same disturbed nutrition; which factor is involved in any given case must be determined from the history and from experimental changes in the food. That the food is the main factor is proven by the rapid improvement which follows the complete withdrawal of food in the cases of the intoxication type; such a result does not follow this procedure in the true intestinal infections. Of the food constituents, casein seems to be harmless. Salts and sugars have a fever producing effect. The fats play a secondary role, augmenting the action of the salts and sugars. Finkelstein's classification divides the nutritional disturbances into a succession of stages, indicating varying degrees of intolerance to food. Heredity and outside factors (temperature, etc.), are important factors in determining the food tolerance in individual cases. The pathogenesis of the various stages is not clear, except in the first stage, in which there occurs a loss of calcium and magnesium and of water.

To overcome the conditions noted, Finkelstein devised *Eirweissmilch* or casein milk. By a too long continued disturbance of nutrition the food tolerance may be so reduced that even breast milk will not give to the infant the required number of calories. Casein milk is high in fats and albumin, low in sugars and salts. It is made by mixing one pint of buttermilk (the old-fashioned kind made by churning) with the curd and fat of one quart of milk rubbed through a sieve with one pint of water. This mixture when first used produced quite marked disturbances, to correct which Finkelstein added 3 per cent of malt. The indications for casein milk feeding are two-fold: 1, when the food tolerance is lowered, representing the stage of decomposition; 2, fermentative conditions in the gastrointestinal tract, that is, the stage of dyspepsia. The results are always uniformly good in this second class of cases, but the food is expensive and the dyspepsia can usually be overcome with other, less expensive forms of feeding. Before beginning casein milk feeding, eight to twelve hours of starvation are essential, except in the cases where there is extreme emaciation. The feedings are at first small and frequent. After the third day the food is increased as rapidly as possible, at the rate of 100 ccm per day, until the child is receiving 200 ccm per kilo. After gain in weight has begun, failure of further gain may be due to too little carbohydrate, which may be increased to 7 per cent of malt; in older children flour may be added. The child is kept on casein milk for six to eight weeks; it should be the object to return to normal food as soon as possible. Casein milk is a distinct addition to our therapeutic foods; it is not so good as breast milk, but better than anything else.

J. J. Thomas, in opening the discussion, said that the first real light we had in scientific feeding was that given by Czerny and Keller. The older method of percentage feeding now seems to be entirely unscientific. Finkelstein's classification appears to be an improvement even on Czerny and Keller's, but is wanting in that it makes no place for Czerny's "*Mehlnährschaden*," which is a distinct clinical picture that one frequently sees.

S. L. Bernstein asked in regard to the advertised "Albuco" milk, which is stated to be a casein milk; in one case in which he had used this preparation the results obtained were poor.

E. O. Houck said that an objection to the scientific classifications and feedings lies in the fact that they are not available to the general practitioner, because he has difficulty in understanding the problems involved and because he cannot read the German literature.

H. J. Gerstenberger, in closing, said that he knew nothing of the "Albuco" preparation. The manufacture of casein milk is extremely diffi-

cult if uniformity in the finished product is to be obtained and he did not see how it could be satisfactorily prepared as a proprietary product. The value of modern teaching, as laid down by Czerny and Finkelstein, is that feeding can be done logically. Grulee's book is the best text in English dealing with the subject.

### COUNCIL MEETING

A regular meeting of the Council of the Academy was held Wednesday, February 12, 1913, the President, H. L. Sanford, in the chair.

R. E. Skeel, present by invitation, offered objection to the content and form of the inquiry sent out by the Secretary under instructions of the Council to members whose names occur in the lay press. Doctor Skeel felt that the form of the inquiry should be made more diplomatic and he desired a ruling by the Council on the question: "Is it, or is it not, ethical for a member to reply to a request by stating whether or no a public man is or is not in a serious condition and allowing his name to be used as authority for the statement?" R. K. Updegraff presented the following resolution, which was adopted: That it be the sense of the Council that it has not endeavored to decide whether specific instances are or are not ethical; that its sole endeavor thus far has been to acquire information. The President was directed to appoint a committee of three, one member to be the Secretary, to draw up a suitable letter of inquiry concerning medical items in the lay press. The Chair appointed the following: R. E. Skeel, O. T. Schultz, and J. E. Tuckerman.

The names of the following applicants for active membership were ordered published: E. A. Peterson, R. L. Turrell, H. W. Masenheimer, G. H. Ehret was reinstated as an active member. W. H. Perry, of the Van Wert County Medical Society, was transferred to active membership.

W. T. Corlett's letter of resignation as trustee of the Academy was read and the resignation accepted. R. E. Skeel was nominated and elected to fill the unexpired term.

C. E. Ford asked to appoint the following to the Legislative Committee, leaving one vacancy for appointment to special work: B. A. Gage, R. E. Skeel, C. W. Eddy.

R. G. Perkins asked the appointment of the following to the Committee on Public Health: G. M. Morrill, J. C. Placak, C. H. Lenhart, E. F. Romig.

A. S. Storey asked the appointment of R. B. Newcomb to the Civic Committee, leaving one vacancy for appointment to special work.

F. T. Kopfstein presented the names of the following for appointment to the Membership Committee: W. J. Benner, J. L. Bubis, A. M. Cheetham, Wm. Landgrebe, R. J. Lawlor, A. J. Pearse, S. J. Webster.

The appointments to the standing committees were approved.

The Secretary reported that arrangements had been made for operating the stereopticon on the same basis as last year, and that arrangements with *The Cleveland Medical Journal* upon the same terms as last year had been made. Approved.

The President reported that arrangements with the Cleveland Medical Library Association for the use of the auditorium were the same as last year. Approved.

Upon motion the Chair was directed to appoint a committee to present recommendations to the Charter Commission. The following were named: R. G. Perkins, C. E. Ford, O. T. Schultz, H. L. Sanford, and J. E. Tuckerman.

A. S. Storey, Chairman of the Civic Committee, made the following report against the publishing in the local journal of a list of specialists in the city: Specialists can mail cards to the medical profession, calling attention to the fact that their practice is limited to a specialty. All members who receive the local journal also receive the Journal of the Ohio State Association, in which any specialist can list his name. Specialists may run private advertisements in the local journal. Practice comes

from the record of work done rather than from any advertisements. It would be necessary to appoint a committee to pass upon who are really specialists. It might be well if some special training were required of all physicians posing as specialists. The report was approved as read.

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### Book Reviews

**Medical Men and the Law.** A Modern Treatise on the Legal Rights, Duties and Liabilities of Physicians and Surgeons. By Hugh Emmett Culbertson, Esq., member of the Ohio and New York Bars; Contributing Editor to many Legal Publications. Octavo, 325 pages. Cloth, \$3.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

The author's announcement of "A Modern Treatise on the Medical Rights, Duties and Liabilities of Physicians and Surgeons" has been cleverly worked out, and as a result a very readable volume is presented.

Every doctor at some period of his career is confronted with legal perplexities and doubts that in many instances go unsolved, and in many others cause him worry and perhaps litigation. This book is a compendium of legal information for medical men—a sort of first aid on medico-legal questions. Speaking liberally it could be styled "Every Doctor His Own Lawyer." It is a book of information, of advice and counsel, and should enable the physician to keep in the safe channel and avoid the rocks and shoals. It deals with: "The Relation of Physician to Patient," "Compensation for Professional Services," "Malpractice or Negligence," "Criminal Liability of Physician and Surgeon," "Medical Men in Court," and numerous other subjects of like interest. It ought to answer any question upon these subjects that any doctor of an inquiring mind rises to present. Like an insurance policy, it may save loss later on. If it accomplishes its purpose, it will obviously keep money out of the lawyer's pocket, and keep it in the pocket of the doctor, and perhaps add a little to what is already there. This volume offers innumerable prescriptions for peace of mind, because, "Ignorance of Law is no Excuse."

Certainly the lawyer who presents this work gives evidence of wide and persevering research. The reviewer recommends it to the reader, and as a testimonial has ordered a copy from the publisher, himself.

R. B. N.

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**Diseases of Children.** A Practical Treatise on Diagnosis and Treatment for the Use of Students and Practicioners of Medicine. By Benjamin Knox Rachford, Professor of Diseases of Children, Ohio-Miami Medical College, Department of Medicine of the University of Cincinnati; Pediatrician to the Cincinnati Hospital, etc. Cloth, 783 pages, 107 figures, 6 plates. D. Appleton & Company, New York and London, 1912.

The only real justification for adding another textbook of pediatrics to the list already published in the United States would be a presentation of the subject of infant feeding and nutritional disturbances in a manner that would do justice to the progress made in these important subjects during the past years, especially by the Germans. From a careful perusal of these chapters, the reviewer is aware that the author has kept in close touch with modern foreign literature and that he has stated new facts in so clear a form as have never been given in an American textbook of pediatrics before. The net result in the reading of these chapters, especially the one relating to nutritional disturbances, however, is far from satisfactory, for the simple reason that it is a combination of mostly German and American ideas, arranged more or less to meet the needs of the subject under discussion without consistently carrying through the one or the other idea. For instance, in the consideration of the deleterious part played in the production of nutritional disturbances by overfeeding, the author quotes Czerny and Keller, who were

the pioneers and are the main advocates of the four-hour schedule in artificial feeding, and yet he himself advocates giving artificial food every two hours. And again under the chapter "Acute Intestinal Indigestion" the author quotes Czerny, Keller, Finkelstein, Langstein and Meyer, as attempting a differentiation of the symptom groups produced by indigestion of the different ingredients of milk, and then describes a protein indigestion which is absolutely denied by these authors to exist; and still again, the author includes under "Enteric Infection" the so-called cholera infantum, which ought to belong in the author's chapter of "Acute Intestinal Indigestion."

The reviewer is confident that, although as stated above, many facts new to American textbooks are clearly stated, presentation of these chapters will enable neither the student nor the physician to gain a true conception of the nutritional diseases of infancy, and, therefore, the reviewer cannot recommend these chapters to the medical public, and especially not to the student.

The remainder of the book presents the various subjects in so concise and clear a manner that the reviewer feels that the work is worthy of use, even though the most important part of it is not what it might have been.

H. J. G.

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Principles and Practice of Obstetrics. By Joseph B. De Lee, A. M., M. D. Professor of Obstetrics at the Northwestern University Medical School. Large Octavo of 1060 pages, with 913 illustrations, 150 of them in colors. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$8.00 net; half morocco, \$9.50.

The ability to reflect accurately, on the printed page, the accumulated wisdom of years of clinical and teaching experience is as rare as it is valuable. This ability the author has shown in an unusual degree. Rarely have we seen a volume so thoroughly up-to-date, and yet so teeming with evidences of the author's actual experience and observation. The arrangement is good and well suited to the student's needs. The illustrations are nearly all new, and depict clearly the facts they are intended to show. Many of the details of treatment not usually found in a textbook are given in small print. This arrangement adds materially to the value of the book as a reference book, and yet allows the student to read without waste of effort in picking out essentials.

The author has happily emphasized the modern feeling that pregnancy and labor in our women are all too often pathological, and require wide clinical knowledge for their proper management. Adequate descriptions and illustrations of the newer obstetric operations are given. The author, while recognizing that obstetrics is essentially surgical, has maintained a nice balance in his instructions with regard to treatment. The work is extensive and brings the scientific and technical into close contact with the art and the practical side of obstetrics. We give it our most hearty recommendation.

A. J. S.

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The Practical Medicine Series. Volume VII, Series 1912: Pediatrics. Edited by Isaac A. Abt, M. D., Professor of Pediatrics, Northwestern University Medical School, Chicago, etc.; with the collaboration of May Michael, M. D. Orthopedic Surgery: Edited by John Ridlon, A. M., M. D., Professor of Orthopedic Surgery, Rush Medical College; with the collaboration of Charles A. Parker, M. D. Cloth, 240 pages, eight plates, three figures, \$1.25. Price of the Series of ten volumes, \$10.00. The Year Book Publishers, 180 North Dearborn Street, Chicago.

The authors of this work have given excellent abstracts of the most important contributions to pediatric literature, and it will be a valuable asset to those who have been hindered in following the complete literature first-hand.

H. J. G.

A Compend of Histology. By Henry Erdman Radasch, M. Sc., M. D., Assistant Professor of Histology and Embryology in the Jefferson Medical College, Philadelphia. Third edition, revised and enlarged. Cloth, pp. xii + 363, 111 illustrations, \$1.00 net. P. Blakiston's Son & Company, Philadelphia, 1912.

In attempting to estimate the value of a compend it is unfair to compare the latter with a textbook or manual. In proper teaching a compend should never be allowed to take the place of a textbook or of laboratory exercises. But for the marshaling and the orderly gathering together of knowledge gained from the laboratory and from fuller textbooks texts, compends, if not merely a list of questions with yes and no answers, may serve a useful purpose, in that they help make facts learned more available. From this standpoint Radasch's Compend of Histology is above the average. In the present edition the more important changes relate to the development of the ovum and placenta; the chapter on the connective tissues has been amplified. The book is unusually well illustrated for a volume of its kind.

O. T. S.

### Acknowledgements

Textbook of Ophthalmology. In the Form of Clinical Lectures. By Dr. Paul Roemer, Professor of Ophthalmology at Griefswald. Translated by Dr. Matthias Lanckton Foster, Member of the American Ophthalmological Society, etc. Volume III. Cloth, pp. xx and 324, 73 figures and 4 colored plates, \$2.50 net. Rebman Company, New York, 1913.

The Practice of Urology. A Surgical Treatise on Genito-Urinary Diseases Including Syphilis. By Charles H. Chetwood, M. D., LL. D., Professor of Genito-Urinary Surgery, New York Polyclinic, etc. Wm. Wood & Company, New York, 1913.

Golden Rule Series: Golden Rules of Gynecology. Aphorisms, Observations and Precepts on the Proper Diagnosis and Treatment of Diseases of Women. By George B. Norberg, M. D., Kansas City, Mo.; Professor of Diseases of Women and Clinical Gynecology, University Medical College; Gynecologist, Kansas City General Hospital, etc. Cloth, 8vo, 253 pages, \$2.25. C. V. Mosby Company, St. Louis, 1913.

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; assisted by Leighton F. Appleman, M. D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. Vol. XV, No. 1, March, 1913. Whole No. 57. Surgery of the Head, Neck and Thorax.—Infectious Diseases, Including Acute Rheumatism, Croupous Pneumonia, and Influenza.—Diseases of Children.—Rhinology and Laryngology.—Otology. Price, \$6.00 per annum. Lea & Febiger, Philadelphia and New York.

New and Nonofficial Remedies, 1913. Containing descriptions of the articles which have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association, prior to January 1, 1913. Paper 320 pages, 25 cents. Press of the American Medical Association, Chicago, 1913.

Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1912. Government Printing Office, Washington, 1913.

Report of the Committee on Prevention of Blindness of the Council on Health and Public Instruction of the American Medical Association. Made at the Atlantic City Session, June 4 to 7, 1912. Press of the American Medical Association, Chicago.

Sight Saving as a National Movement. By F. Park Lewis, M. D., Buffalo, N. Y., President of the American Society for the Conservation of Vision. Reprint from the Pennsylvania Medical Journal, January, 1913.

Muscle Training in the Treatment of Infantile Paralysis. By Wilhelmine G. Wright, Boston Normal School of Gymnastics, 1905. Reprint from the Boston Medical and Surgical Journal, 1912, CLXVII, 567-574. Paper, 25 cents. W. M. Leonard, Boston.

The Possible Function of the Life-Insurance Company in the Conservation of Health. By Eugene Lyman Fisk, M. D., Medical Director of the Postal Life Insurance Company, New York. Address delivered before the Section on Social and Economic Science, American Association for the Advancement of Science, Cleveland, January 3, 1913.

Some Notes on Recent Typhoid Fever Outbreaks in Kona, Hawaii. By E. S. Goodhue, A. M., M. D. Reprint from the American Journal of Public Health, 1912, II. 883-895.

Proceedings of the Canal Zone Medical Association, Isthmian Canal Commission, for the half-year, April to September, 1911. Vol. IV, Part I. I. C. C. Press, Quartermaster's Department, Mount Hope, Canal Zone.

Public Health Administration: Its Dependence upon Reports of Cases of Sickness. By John W. Trask, Assistant Surgeon General, U. S. P. H. Service. Reprint No. 109 from Public Health Reports, January 3, 1913. Government Printing Office, Washington.

Hookworm Disease: The Proportion of Males to Females in the American Hookworm (*Necator Americanus*), Based on 13,080 Worms from 102 Cases. By Ch. Wardell Stiles, Professor of Zoology, and W. L. Altman, Assistant, Hygienic Laboratory, U. S. P. H. Service. Reprint No. 110 from Public Health Reports, January 3, 1913. Government Printing Office, Washington.

Typhus Fever and Typhoid Fever: A report on Papers Read at the Southern Medical Association Meeting at Jacksonville, Fla., November 12-14, 1912. By Joseph Goldberger, Passed Assistant Surgeon, U. S. P. H. Service. Reprint No. 111 from Public Health Reports, January 10, 1913. Government Printing Office, Washington.

Federal Public Health Administration: Its Development and Present Status in the United States. By J. W. Kerr, Assistant Surgeon General, U. S. P. H. Service. Reprint No. 112 from Public Health Reports, January 17, 1913. Government Printing Office, Washington.

Hookworm Disease: Number of Treatments and Number of Full Doses of Thymol Administered in 61 Hospital and 22 Home-cured Cases of Hookworm Infection. By Ch. Wardell Stiles, Professor of Zoology, and Geo. F. Leonard, Assistant, Hygienic Laboratory, U. S. P. H. Service. Reprint from No. 113 from Public Health Reports, January 17, 1913. Government Printing Office, Washington.

Plague: The Relation between Traffic and the Spread of Plague. By W. C. Rucker, Assistant Surgeon General, U. S. P. H. Service. Reprint No. 114 from Public Health Reports, January 24, 1913. Government Printing Office, Washington.

The Improvement of Medicinal Plants, by F. A. Miller, B. S. The Relative Strength of Fresh and Old Samples of the Fluid Extract of Ergot, by Chas. C. Haskell and Chas. R. Eckler. Experiments with the Cat Method for Testing Digitalis and its Allies, by C. R. Eckler. The Potency of First Year Cultivated Digitalis Leaves as Indicated by Physiological Assay, by F. A. Miller, B. S., and W. F. Baker, B. S., M. D. The Lilly Scientific Bulletin, Series 1, No. 2. Eli Lilly & Company, Indianapolis, 1912.

Annual Report of the Library Committee of the College of Physicians of Philadelphia for the Year 1912. Reprint from the Transactions, 3rd Series, XXXIV, 1912.

Summer Course in Municipal Sanitation. Official Register of Harvard University, Vol. X, February 11, 1913; No. 3, Part II.



## Information Wanted Regarding Alumni Once Residents of Cleveland

The following graduates of Cleveland Medical College, Charity Hospital Medical College, Medical Department of Western Reserve University, Medical Department of Wooster University and Medical Department of Ohio Wesleyan University were at one time *residents of Cleveland*.

Concerning these we lack information. Of those that have no figures following the name, there is no record since graduation. Of others there is a later record as shown by the data in parentheses.

We desire information concerning the address of those that are living and concerning those that are dead we wish especially to get the address of some member of the family who can give us biographical data (i. e. full name, collegiate degrees, date and place of birth and of death, war record, professional and civil offices held, etc.) For such information blanks will be sent. Any information sent, in writing rather than by telephone, to F. C. Waite, 1353 East 9th Street, Cleveland, will be appreciated.

### Graduates of Cleveland Medical College and Medical Department of Western Reserve University

- '69, William Balmer (1900, 141 Prospect)
- '64, Edward F. Baker
- '63, Alva V. Baldwin (1863, Newburg)
- '74, Edwin F. Barstow
- '71, Anthony P. Berghoff
- '83, Thomas Murray Black (1900, 1055 Superior Street)
- '56, Charles W. Canfield
- '68, William H. Cartter (1872, 249 Pearl Street)
- '85, Thomas N. Clark
- '87, John Henry Davies
- '44, Edmund Day
- '69, Harvey J. Decker (1869, Newburg)
- '77, George E. D. DeMars
- '70, Benjamin W. Denny (or Dennie) (1872, 472 Lorain Street)
- '86, Joseph Anthony Diermert (1910, 1338 East 55th Street)
- '53, William Dollman
- '87, Frank Mandeville Doyle
- '70, Augustus Draeger
- '82, George C. Ehrhart (1890?)
- '63, John C. Ferguson
- '63, Ralph L. Foote
- '89, Adolph Freedman
- '85, Peter Eugene Michael Goetz (1903, 581 Woodland Avenue)
- '69, Thomas Hannan (1888, 153 Oregon Street)
- '96, William Hendry (1902)
- '54, Frederick Henry Hill
- '88, Francis Xavier Hoerstmann
- '75, Robert T. Hogan
- '66, Oscar E. Holloway
- '46, Rudd Clark Hopkins (1861)
- '46, George Anderson Hull
- '82, Benjamin Jackson (1888, 12 Cedar Avenue)
- '49, Edwin Kelley
- '92, Orion King
- '70, Horace B. Kingsley (1872, 45 Bolivar Street)
- '84, Mathew C. Kolb (1888, 993 Pearl Street)
- '94, John Jacob Lohrer
- '65, Hugh C. McKeon
- '60, Colin Mackenzie (1872, 173 Superior Street)
- '52, Frederick William Marseilles (1862)
- '58, Lewis D. Miles

- '93, Roland Allen Moore
- '93, C. W. Franz Minenchehofe
- '44, Charles W. Northrop
- '88, Benjamin Perry Paddock (1893)
- '47, James Herbert Peck
- '57, Walter N. Prentice (1863)
- '72, Norman Prentice Sackrider
- '56, Samuel M. Sargeant (1883, 5 Chestnut Street)
- '81, Edwin Saunders (1900, 164 Brownell Street)
- '89, George Augustus Saunders (or Saunters)
- '58, Julius C. Schenk (1883, 248 Pearl Street)
- '53, James H. Seymour
- '85, Burton Frank Smith
- '72, Martin Stevens
- '44, Samuel Strong
- '66, Warren D. F. Sturtevant
- '86, Willis Hayden Waite
- '57, Henry Wakefield
- '63, Dillingham C. Washington
- '88, Henry Edward Whitsey (1906)

#### Graduates of Charity Hospital Medical College

- '70, Charles F. Beebe
- '65, Mark W. House
- '68, Eugene P. Kingsley
- '65, T. A. (or H.) Patterson
- '68, Andrew B. Reed (1877, Columbus Street)
- '70, William J. Sheppard (1883, 72 Merchant Avenue)

#### Graduates of Medical Department Wooster University

- '80, Ida M. Andrus
- '79, Mrs. Hattie F. Atwater
- '80, Herman A. Book (1888, 244 Starkweather Avenue)
- '94, George W. Carroll (1903, 1054 St. Clair Street)
- '83, William H. Case (1888, 302 Viaduct)
- '78, Daniel M. Clark
- '73, Charles A. Coolidge (1873, U. S. Recruiting Office)
- '71, Edwin M. Davidson (1900, 247 Colonial Arcade)
- '73, Christoph (or Christian) Feursattel
- '85, Charles L. Fogg (1900, 381 Detroit Avenue)
- '84, Gustave A. Hansheer (or Hausheer)
- '75, William D. Johnson (1883, 538 Lorain Street)
- '82, Lawrence E. Reardon
- '81, Robert R. Reynolds (1903, 269 Case Avenue)
- '71, Franklin T. Slosson (1877, Hoffman Block)
- '76, Henry Stephan
- '95, William A. Stovering
- '79, Charles L. Taylor
- '79, John Tobin (1883, 77 Garden Street)

#### Graduates of Medical Department of Ohio Wesleyan University

- '02, Pankratz Kohles (1903, 452 Central Avenue)
- '98, Mabelle Rogers

## A Federal Health Service Favored by the Commission on Economy and Efficiency

Measures whose aim is the establishment of a federal health service seem to have a hard time of it. The activity of those with axes to grind, the disciples of so-called medical freedom and those of the numerous cults which pretend not to but do practice medicine without proper training or license, appears to make a greater impression upon our federal legislators than does the passivity of the vastly larger number of more intelligent people, who must feel, if they could only be made to realize

it, that human health is equally worthy with animal health of conservation. Ex-president Taft repeatedly expressed himself in favor of a federal health service. In addition to favorable expressions in messages and speeches, he referred the question to his Commission on Economy and Efficiency to determine the advisability of transferring the present separated federal subdivisions dealing with public health problems to an independent bureau. The report of the Commission has been published as Senate Document 1002. The substance of the report has been given as follows by the *Journal of the American Medical Association*: The Commission on Economy and Efficiency has undertaken to investigate the various government services having to do with matters pertaining to public health, and submits the following preliminary report on the advisability of establishing a government service independent of existing executive departments, to have charge of those activities that pertain to the public health.

The recommendations of the commission on this subject are:

1. That provision be made by law for the establishment of an independent Public Health Service.

2. That provision be made in the law creating that service for the transfer to it of bureaus or divisions in the executive departments concerning which there is no doubt as to their distinct public health purpose, and among those the following: (a) the Bureau of Public Health and Marine Hospital Service, now under the Department of the Treasury; (b) the Bureau of Chemistry, or that part of it charged with the investigation of the adulteration of foods, drugs and liquors, and with the execution and enforcement of the act of Congress entitled "an act for preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines and liquors, and for regulating traffic therein, and for other purposes," approved June 30, 1906, now in the Department of Agriculture; (c) the Division of Vital Statistics, Bureau of the Census, now in the Department of Commerce and Labor.

3. That provision be made in the law for the grant of authority to the President to transfer to said Public Health Service the whole or any part of any bureau, division, or other branch of the government engaged in work pertaining to the public health except the Medical Department of the Army and the Bureau of Medicine and Surgery of the Navy, when on investigation he is of the opinion that it will be for the best interests of the public to make the transfer.

4. That provision be made also for certain new bureaus under said Public Health Service to take charge of lines of work not covered by other subdivisions of said services or other bureaus, divisions, or branches of the government.

5. That the director of the Public Service be authorized, with the approval of the President, to rearrange the organization and work of the several bureaus and divisions covered by his service in such manner as will bring about a better coordination of said subdivisions.

6. That provision be made by the law for the transfer of funds appropriated with each service transferred and for the apportionment of funds for each bureau or division rearranged by the director of the service.

The foregoing recommendations represent the conclusions which have been reached by the commission as the result of its study of the work now being done in the several executive departments in the protection and promotion of the public health. In other reports the commission has emphasized the economy and efficiency to be attained through the bringing together under the same general direction of those services whose activities fall within the same field.

The commission has studied in detail the work of the several services and branches of the government having to do with matters of public health, and has reached the conclusion that until the several bureaus and divisions are brought together under a common direction it will be impos-

sible for the government to have a definite health program which is adapted to the needs of the people or for public health matters to receive the attention their importance deserves, nor can the existing services accomplish the results that should be obtained from the moneys expended in their maintenance and operation.

The creation of an independent Public Health Service is recommended by the commission in order to accomplish three purposes: (1) to insure that a work of such commanding importance to the people will receive the special attention that it deserves, (2) to provide an organization best adapted to doing health work, and (3) to relieve existing departments of duties in no way germane to their chief functions and which therefore detract from rather than add to their efficiency.

In respect to the first of these points the commission is influenced not only by the importance and variety of the work now being done by the government in this field, but by the certainty that public opinion will demand that the government do much more each year. It may be said that only within recent years has the country been aroused to the importance from the national standpoint of the subject of public health. That this awakened interest must lead to the assumption by the national government of new duties and responsibilities in this field is almost certain. It is not necessary, however, to base a recommendation for an independent Public Health Service on future needs. At the present time the operations of the government in this field are sufficient to warrant the creation of an independent service to care for them. In the Marine Hospital, quarantine and immigrant inspection work of the Bureau of Public Health and Marine-Hospital Service of the Treasury Department; in the scientific research work done in that bureau; in the enforcement of the pure food, drug and liquor act, through the Bureau of Chemistry of the Department of Agriculture; in the comprehensive efforts being made by the Division of Vital Statistics of the Bureau of the Census, Department of Commerce and Labor; and in the special work being done by various other subdivisions the government is now doing work pertaining directly to public health and sanitation, and that work requires the maintenance of elaborate services and the expenditure of millions of dollars annually.

The commission has considered the question as to whether the advantage to be derived from the correlation of these several services could not be secured by assembling them under some one of the existing executive departments. Such examination, however, has convinced the commission that this would not reach the end desired unless all the activities which are not directly related to health work be first transferred from such department. It believes that the attempt to group these several services under a department whose major interest would be in other fields would result in little, if any, improvement over existing conditions. At the same time the commission recognizes the inadvisability of adding to the number of executive departments if such action can be avoided. It is for this reason that it recommends the creation of a service which, while independent of other departments, will not itself have the status of a department unless after such a service has been developed and a better basis exists for judgment it is found that an additional department is needed. It may be that by redistribution of activities the same end may be reached without increasing the number of departments.

The services which the commission believes should be transferred by law as subdivisions of the proposed Public Health Service do not represent all of the bureaus, divisions and subdivisions performing work in connection with the public health and sanitation. There are a number of other services whose activities, in whole or in part, fall in this field. These other services have grown up, however, as parts of organizations created for the performance of work in fields other than that of public health and sanitation. Only a painstaking investigation of the exact nature of the work now being performed by such services and its rela-

tion to other activities performed by the bureaus and departments in which such services are located will make it possible to determine whether or not it will be in the interest of economy and efficiency to have such work performed as at present or transferred to and made a part of the Public Health Service. The commission has undertaken detailed studies of the history, organization and activities of these services. Until the results of such studies are available the commission believes that it would be a mistake to transfer the work of such services.

It is for this reason that the commission has restricted its recommendations concerning the service to be immediately made part of the Public Health Service to those few services concerning the propriety of whose incorporation in the Public Health Service there can be but little difference of opinion. It is satisfied that such further investigation of other services having to do with public health matters will establish clearly that some of these services, or certain parts of their activities, should be transferred to the proposed Public Health Service. The commission accordingly recommends that the act providing for the creation of such Public Health Service should authorize the President hereafter to transfer such other services or parts of services to the independent Public Health Service to be created as, in his opinion, is for the best interests of the public. In making this recommendation the commission has followed the precedent established by the act creating the Department of Commerce and Labor.

The commission believes that similar provision should be made in the act providing for the establishment of an independent Public Health Service.

It believes also that the director of the Public Health Service, subject to the approval of the President, should have the same power to rearrange and consolidate the subdivisions of his service that was conferred on the Secretary of Commerce and Labor to rearrange and consolidate the statistical work of the bureaus and offices confided to said department.

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**Science and Newspaper Sensationalism.**—We have now and then been scored for counseling an attitude of healthy skepticism in the incipient stages of new investigations. False hopes and unfulfilled promises not only injure the individual, but when distributed through the medium of the public press they react on the profession as a whole. So long as what a newspaper says is implicitly believed in by a large class there is danger in the garbled reports and one-line excerpts from scientific contributions. The aim of every editor is brevity, and the limitations of the subject which he is presenting in the news columns are too often never mentioned. The newspaper public thus gradually acquires a subconscious distrust of the medical fraternity which has not "made good" on this or that alleged revolutionary discovery—in reality no discovery at all, but only a catchword or figment of the imagination of an overzealous reporter. It has been stated by the defenders of the modern press that whatever harm it does is more than compensated for by the good it accomplishes, so that in casting up the account the balance is on the side of good. It is contended that reading leads to a desire to acquire knowledge, and that as soon as knowledge is gained there is a demand for something more worthy; the bad newspaper is cast aside and one with greater intelligence and a higher standard takes its place. We agree with Mr. A. Maurice Low that this ingenious argument cannot stand the test of examination. Perverted truth and exaggerated style can scarcely create a demand for something better. "A man who must have strong meat finds less highly seasoned food without savor." The newspaper described does not lead the reader by easy steps to a higher level, but "drags him down to its own level of dishonesty and baseness until morally, intellectually and ethically he is the worse for having fed on that which has been his sole diet."—(*Jour. A. M. A.*)

**The First Human Antirabic Inoculation:** "On Monday, July 6 (1885), Pasteur saw a little Alsatian boy, Joseph Meister, enter his laboratory, accompanied by his mother. He was only nine years old, and had been bitten two days before by a mad dog at Meissengott, near Schlestadt.

Pasteur's emotion was great at the sight of the fourteen wounds of the little boy, who suffered so much that he could hardly walk. What should he do for this child? Could he risk the preventive treatment which had been constantly successful on his dogs? Pasteur was divided between his hopes and his scruples, painful in their acuteness.

Vulpian and M. Grancher examined little Meister in the evening, and, seeing the number of bites, some of which, on one hand especially, were very deep, they decided on performing the first inoculation immediately; the substance chosen was fourteen days old and had quite lost its virulence; it was to be followed by further inoculations gradually increasing in strength.

"All is going well." Pasteur wrote to his son-in-law on July 11: "the child sleeps well, has a good appetite, and the inoculated matter is absorbed into the system from one day to another without leaving a trace. It is true that I have not yet come to the test inoculations, which will take place on Tuesday, Wednesday and Thursday. If the lad keeps well during the three following weeks, I think the experiment will be safe to succeed."

But, as the inoculations were becoming more virulent, Pasteur became a prey to anxiety: "My dear children," wrote Mme. Pasteur, "your father has had another bad night; he is dreading the last inoculations on the child. And yet there can be no drawing back now! The boy continues in perfect health."

Renewed hopes were expressed in the following letter from Pasteur:

"My dear René, I think great things are coming to pass. Joseph Meister has just left the laboratory. The three last inoculations have left some pink marks under the skin, gradually widening and not at all tender. There is some action, which is becoming more intense as we approach the final inoculation, which will take place on Thursday, July 16. The lad is very well this morning, and has slept well, though slightly restless; he has a good appetite and no feverishness. He had a slight hysterical attack yesterday." \* \* \* \*

The treatment lasted ten days: Meister was inoculated twelve times. The virulence of the medulla used was tested by trephinations on rabbits, and proved to be gradually stronger. Pasteur even inoculated on July 16, at 11 a. m., some medulla only one day old, bound to give hydrophobia to rabbits after only seven days' incubation; it was the surest test of the immunity and preservation due to the treatment. \* \* \* \*

By the time he went to Jura, Pasteur's fears had almost disappeared. He wrote from Arbois to his son August 3, 1885: "Very good news last night of the bitten lad. I am looking forward with great hopes to the time when I can draw a conclusion. It will be thirty-one days tomorrow since he was bitten." \* \* \* \*

On August 20 \* \* \* he \* \* \* replied to Léon Say—

"Before my departure for Jura I dared to treat a poor little nine-year-old lad whose mother brought him to me from Alsace, where he had been attacked on the 4th ult., and bitten on the thighs, legs, and hand in such a manner that hydrophobia would have been inevitable. He remains in perfect health." (*Vallery-Radot: The Life of Pasteur. Translated by Mrs. R. L. Devonshire. Doubleday, Page & Company, 1910.*)

**A Crust for the Critics.**—This word critic is of Greek derivation, and signifies judgment. Hence I presume some persons who have not understood the original, and have seen the English translation of the primitive, have concluded that it meant judgment in the legal sense, in which it is frequently used as equivalent to condemnation.

I am rather inclined to be of that opinion, as the greatest number of critics hath of late years been found amongst the lawyers. Many of these gentlemen, from despair, perhaps, of ever rising to the bench in Westminster-hall, have placed themselves on the benches at the playhouse, where they have exerted their judicial capacity, and have given judgment, i. e., condemned without mercy. \* \* \*

But in reality there is another light, in which these modern critics may, with great justice and propriety, be seen; and this is that of a common slanderer. If a person who prys into the characters of others, with no other design but to discover their faults, and to publish them to the world, deserves the title of a slanderer of the reputations of men, why should not a critic, who reads with the same malevolent view, be as properly styled a slanderer of the reputation of books?

Vice hath not, I believe, a more abject slave; society produces not a more odious vermin; nor can the devil receive a guest more worthy of him, nor possibly more welcome to him, than a slanderer. The world, I am afraid, regards not this monster with half the abhorrence which he deserves; and I am more afraid to assign the reason of this criminal lenity shown towards him; yet it is certain that the thief looks innocent in the comparison; nay, the murderer himself can seldom stand in competition with his guilt; for slander is a more cruel weapon than a sword, as the wounds which the former gives are always incurable.

With all this my good reader will doubtless agree; but much of it will probably seem too severe, when applied to the slanderer of books. But let it here be considered that both proceed from 'the same wicked disposition of mind, and are alike void of the excuse of temptation. Nor shall we conclude the injury done this way to be very slight, when we consider a book as the author's offspring, and indeed as the child of his brain. \* \* \*

Lastly, the slander of a book is, in truth, the slander of the author: for, as no one can call another bastard, without calling the mother a whore, so neither can any one give the names of sad stuff, horrid nonsense, etc., to a book, without calling the author a blockhead. \* \* \*

In reality, to depreciate a book maliciously, or even wantonly, is at least a very ill-natured office; and a morose, snarling critic may, I believe, be suspected to be a bad man. \* \* \*

But without ascertaining all the proper qualifications of a critic, \* \* \* I think I may very boldly object to the censures of any one past upon works which he hath not himself read. Such censurers as these, whether they speak from their own guess or suspicion, or from the report and opinion of others, may properly be said to slander the reputation of the book they condemn.

Such may likewise be suspected of deserving this character, who, without assigning any particular faults, condemn the whole in general defamatory terms; \* \* \*

Again, though there may be some faults justly assigned in the work, yet, if those are not in the most essential parts, or if they are compensated by greater beauties, it will savour rather of the malice of a slanderer than of the judgment of a true critic to pass a severe sentence upon the whole, merely on account of some vicious part. \* \* \*

And if we judge according to the sentiments of some critics, and of some Christians, no author will be saved in this world, and no man in the next.—Henry Fielding: *The History of Tom Jones, a Foundling*.

### Medical News

**Prevention of Infant Mortality.**—An English-speaking Conference on the Prevention of Infant Mortality will be held in Caxton Hall, Westminster, London, on Monday morning, Monday afternoon and Tuesday morning, August 4th and 5th. The meetings will be held under the auspices of the (British) National Association for the Prevention of Infant Mortality and The Welfare of Infancy under the Patronage of the King and Queen, and will convene immediately preceding the opening of the International Medical Congress. A tentative program has been issued by the Committee which indicates that the papers will consist largely of medical opinion. The subjects treated will be: The responsibility of central and local authorities in infant and child hygiene; the administrative control of the milk supply; the necessity for special education in infant hygiene; medical problems in infant nutrition; antenatal hygiene. Information in regard to the conference may be obtained from the officers of the American committee: Henry L. Coit, Chairman, 277 Mt. Prospect Avenue, Newark, New Jersey; Philip Van Ingen, Secretary, 125 East 71st Street, New York City.

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**Historical Medical Exhibition.**—Among the historical medical objects to be shown at the exhibition in connection with the International Medical Congress in London during August are many personal relics of Edward Jenner, the discoverer of vaccination. Concerning the history of anesthesia, many interesting relics are to be exhibited beginning with the original autograph journal and manuscripts of Henry Hill Hickman, F. R. C. S., the discoverer of the application of the principle of anesthesia by inhalation for surgical operations, which he proved by actual experiments on animals in 1823. Personal relics of Sir James Simpson, and some of the earliest forms of apparatus for administering chloroform and ether will constitute an exhibit of more than usual interest. Those who may possess any objects of a similar character connected with the history of medicine and the allied sciences, and who would be willing to loan them, should communicate with the Secretary, 54A Wigmore Street, London, W., England, from whom a complete illustrated catalogue may be obtained.

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**A Lodge Meeting of Medical Freemasons** who are members of the International Medical Congress is to be held in London, August 11.

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**The Twelfth International Congress on Ophthalmology** will convene August 11 to 15, at St. Petersburg, with Professor Angelucci of Naples in the chair.

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**Health Work Expense.**—In a statement forwarded to the Senate by the Secretary of the Treasury, February 12, in compliance with the terms of a resolution endorsed by Senator Works, it is stated that the annual cost of the health division of the War Department is \$5,714,090; that of the Navy, \$3,730,522; that of the Agricultural Department, \$3,899,202, and the health service of Panama Canal, \$1,620,891. There are together 15,632 persons in the employ of the various health services.

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**New York Skin and Cancer Hospital.**—The governors of the hospital announce a course of free clinical lectures and demonstrations as follows: On Surgical Diseases of the Skin, each Wednesday afternoon during April and on May 7, by L. Duncan Bulkley; and On the Surgical Treatment of Malignant Diseases, by W. S. Bainbridge, May 14.



**The National Child Labor Committee** held its ninth annual conference in Jacksonville, Florida, March 13 to 16.

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**Testimonial Banquet to William J. Robinson.**—To celebrate the tenth anniversary of the founding of *The Critic and Guide*, a banquet, attended by over two hundred, was tendered to William J. Robinson at the Hotel St. Denis, New York City, March 7. A. Jacobi, president of the American Medical Association, acted as toastmaster.

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**Abstract of Surgery.**—*Surgery, Gynecology and Obstetrics* with its February issue begins the publication of a supplement called the *International Abstract of Surgery* which is published in collaboration with French and German and English surgical journals. The editors are Franklin H. Martin, Chicago; B. G. A. Moynihan, Leeds, England; August Bier, Berlin, and Paul Lecène, Paris, together with a large consulting and collaborating editorial staff. The abstracts and bibliography take up 128 pages of the February issue considered under the following general heads: Surgical technics; surgery of the head and neck; surgery of the chest; surgery of the abdomen; surgery of the extremities; orthopedic surgery; surgery of the nervous system; diseases and surgery of the skin and appendages, and miscellaneous; gynecology; obstetrics; genito-urinary surgery; surgery of the eye and ear, and surgery of the nose, throat and mouth. This extensive undertaking makes an excellent appearance in its first issue and will prove of great practical value.

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**Ohio State Medical Association Meeting.**—The place of the annual meeting of the association has been changed from Youngstown to Cedar Point, and the time from May 13-15 to September 2-4.

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**Medical Legislation.**—House Bill No. 72, making school medical inspection compulsory throughout the state, has been defeated.—A bill has been introduced in the senate which seeks to correct that portion of the vital statistics law relating to the reporting of births, declared unconstitutional by the supreme court.

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**Medical Members of the State Legislature** were entertained at dinner by Governor Cox, March 5, for the purpose of discussing medical matters before the legislature.

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**School Medical Inspection** is to be undertaken at Marietta.

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**Contract Practice Meeting.**—A joint meeting of the Montgomery County Medical Society, the Dayton Homeopathic Society and the Dayton Eclectic Medical Society was held at Dayton, Feb. 26, for the purpose of considering a resolution barring from membership in the various societies those engaged in contract practice.

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**Illegal Practice.**—A. M. Gaboozy of Cleveland, has been found guilty of practicing medicine without a license.—Margaret Novak, a midwife of Cincinnati, has been indicted for murder because of a death resulting from the alleged performance of a criminal abortion.

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**Personal.**—Harriet Covert, of Bowling Green, has been appointed physician at the Girls' Industrial Home at Delaware.—J. Valentine Koch has been appointed assistant to the superintendent of the Dayton State Hospital.—A. J. Shoemaker has been appointed night physician at the State Penitentiary at Columbus.—A. C. Bachmeyer has been made assist-

ant superintendent of the City Hospital of Cincinnati.—J. C. Lincoln, a practitioner of Bowling Green for forty years and for two terms probate judge of Wood county, has retired because of infirmities resulting from a wound received at the battle of Fair Oaks in the Civil War.—Samuel E. Allen has resigned as a member of the staff of the City Hospital of Cincinnati.—Charles G. Glass, a retired physician of Lakewood, sails for Europe in April to spend the summer.—William C. Lynn, of Logan, received two fractured ribs as the result of the collision of his buggy with a street car.—John F. Hill, of Toledo, has removed to Attica.

**Smallpox** caused the closing of schools at Bradner, during the latter part of February.—Schools have been closed at Forest because of diphtheria.

**The Union Medical Association** of the Sixth Councilor District, at its annual meeting in Akron, Feb. 11, elected D. Blankenhorn, of Orville, president; and J. H. Seiler, of Akron, secretary-treasurer.

**The Tri-County Medical Association** of Wood, Hancock and Seneca counties met in Bowling Green, March 13. The following program was presented: Diagnostic Significance of Pain in the Lower Extremities, by John Phillips, of Cleveland; Surgical Treatment of Tonsils and Adenoids, by John V. Hartman, of Findlay; The Laboratory as a Means of Promoting Professional Efficiency, by H. J. Powell, of Bowling Green.

**County Society Meetings.**—Lorain county, at Elyria, Feb. 12. The program was as follows: Appendicitis in Children, by H. E. Hart, of Elyria; Report of Cases of Syphilis Treated with Neosalvarsan, by Valloyd Adair, of Lorain.—Richland county, at Mansfield, Feb. 19. J. M. Burns presented a paper, The Physician in the Role of Consultant.—Mahoning county, at Youngstown, Feb. 18. John Heberding read a paper on the X-ray Diagnosis of Gastrocoloptosis.—Summit county, at Akron, March 4. The program was as follows: A Collecting Trip, poem by A. E. Foltz; Medical Inspection in the Public Schools, by W. C. Tuholsky; Paralysis Agitans, by H. S. Davidson.—Portage county, at Ravenna, March 13. John Phillips, of Cleveland, addressed the society on the Causes of Continued Fever in Childhood.—Clark county, at Springfield, March 11. The address, Eugenics and Race Regeneration, was by C. A. L. Reed, of Cincinnati.—Fairfield county, at Lancaster, March 18. The following program was presented: Vaccine Therapy, by R. W. Smith; Management of Scarlet Fever, by J. M. Stuckey.

**The Ohio State Clinical Association** held its first meeting in Cleveland, March 17 and 18. Medical and surgical clinics were held in the various hospitals. J. G. Mumford, of Clifton Springs, New York, delivered an address on Cooperation in the Medical World, and Roswell Park, of Buffalo, one on Surgery of the Thymus. The following officers for the ensuing year were chosen: Charles S. Hamilton, of Columbus, president; Robert Crothers, of Cincinnati, first vice president; Benjamin R. McClellan, of Xenia, second vice president; G. M. Todd, of Toledo, secretary-treasurer. G. W. Crile, of Cleveland; L. G. Bowers, of Dayton; and C. A. L. Reed, of Cincinnati, were named a committee to arrange for the next meeting.

**Delegates to the Fourth International Congress of School Hygiene**, which meets in Buffalo, August 25 to 30, have been named by Mayor Newton D. Baker, of Cleveland, as follows: School Director Frank G. Hogen; Superintendent J. M. H. Fredericks; Assistant Super-

intendent B. U. Rannells; Mrs. Sarah E. Hyre, clerk of the board of education; E. A. Peterson, chief of the school medical inspection department; and Mrs. Virginia Green, member of the board of education.

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**The Lakeside Hospital Medical Society** held its sixty-fifth meeting Wednesday, February 20. The program was as follows: Clinical Results of Nasal Treatment of Asthma, by W. J. Abbott; Presentation of a Case of Thromboarteritis with Gangrene, by H. L. Taylor; Presentation of a Case of Tuberculosis Pericarditis, by R. Grosbeck; Presentation of a Case of Bone Grafting for Potts' Disease, by S. L. Ledbetter, Jr.; Presentation of a Case of Fractured Spine, by H. K. Shawan; Presentation of a Case of Arthritis Following Abortion, by F. A. Glass; Presentation of Pathological Specimens, by H. O. Ruh.

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**W. T. Barger** has sold his residence at 8507 Wade Park Avenue, Cleveland, to F. Asberli and will remove to Dansville, New York, to take a position on the staff of the Jackson Health Resort.

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**Distribution of Pellagra in the United States.**—The occurrence of from thirty to fifty thousand cases of pellagra in the United States within the last six years with a death-rate of about 39 per cent. calls attention to this disease as one of national importance. The fact that the figures given above constitute only a rather rough estimate of the number of cases again directs attention to the very defective machinery for securing vital statistics in this country.

Although it is outside the province of the United States Public Health Service to collect such statistics, Lavinder, of that service, has attempted to gather figures concerning the prevalence and distribution of pellagra in the United States. The pellagra area lies to a large extent outside the registration area of the country and the figures obtainable through the United States Census Bureau are almost a negligible quantity. Lavinder, therefore, endeavored to secure figures from state authorities, from public institutions and from private sources, and though this method of securing information is never accurate or satisfactory, yet he believes that it may be said with some degree of assurance approximately how much pellagra there is in the United States and where it is to be found. A map is given showing that pellagra has been reported from every state in the union except New Hampshire in the east and the group of western and northwestern states comprising Idaho, Minnesota, Montana, the two Dakotas, Utah, Wyoming and Nevada. The greatest prevalence is found in the group usually spoken of as the Southern states, which group of states, with the exception of Kentucky, is practically all outside the registration area. In only one state is the disease reportable by law.

Many interesting facts concerning pellagra are given in Lavinder's report but, as emphasized by him, although pellagra cannot be compared in prevalence with such a disease as typhoid fever, for example, yet the large number of cases and the high mortality-rate together with its wide and apparently increasing distribution make it a disease of national importance, and afford an additional strong reason why every state not already having adequate vital statistics laws should at once enact such laws. The aid which accurate figures and facts concerning the epidemiology of this important disease would give in the solution of the problem of pellagra should alone be sufficient to demand the enactment of such laws in the coming legislatures of every state not now within the registration area. (*Jour. A. M. A.*)

## Deaths

**Peter Willett**, Western Reserve University, 1860; a veteran of the Civil War; for forty-seven years a practitioner of Elmore; died January 2, from disseminated sclerosis, aged 79.

**Clarence W. Zurcher**, College of Physicians and Surgeons, Baltimore, 1911; of Lectonia; died December 27, 1912, from scarlet fever, aged 25.

**William A. Stoneburner**, Starling Medical College, Columbus, 1891; of Roseville, died February 5, from heart disease, aged 52.

**Manly Wells Webb**, College of Physicians and Surgeons, Baltimore, 1884; formerly of New Pittsburgh; a retired physician of Ravenna; died February 7, from gastric carcinoma, aged 57.

**Samuel Souders**, Bellevue Hospital Medical College, 1871; for over fifty years a practitioner at Beavertown; died February 9, from senile debility, aged 82.

**Thomas G. Gordon**, Columbus (Ohio) Medical College, 1884; of New Philadelphia; died February 11, from apoplexy, aged 56.

**David Shewman Watson**, Pulte Medical College, Cincinnati, 1905; of Fredericktown; died February 13, from pneumonia, aged 36.

**Charles O'Neil Dunlap**, Columbus (Ohio) Medical College, 1878; of McArthur; formerly superintendent of the Athens State Hospital; a member of the recent constitutional convention; died February 13, from nephritis, aged 56.

**Joseph W. Walters**, for more than fifty years a practitioner at Ada; died February 14, from senile debility, aged 83.

**Herbert Work Ferry**, College of Physicians and Surgeons, Chicago, 1904; of Poland; a veteran of the Spanish-American War; died February 14, from pneumonia, aged 33.

**Daniel S. Coleman**, University of Wooster, Cleveland, 1869; of Howard; died February 15, from nephritis, aged 69.

**John H. Kochenderfer**, Starling Medical College, 1885; of Galion; a veteran of the Civil War and a survivor of the "Sultana" explosion; died February 16, aged 71.

**Russell Clark Bowdish**, of Marion, a charter member of the Marion County Medical Society; died February 20, from senile debility, aged 89.

**John Anthony Hobson**, Miami Medical College, Cincinnati, 1872; of Flushing; proprietor of the Flushing Hospital; died suddenly, February 21, from heart disease, aged 63.

**Royal Douglass Horn**, University of Wooster, Cleveland, 1881; of Butler; died March 1, at the Lakeside Hospital, Cleveland, from pneumonia, aged 56.

**Owen F. Hildebrandt**, Medical College of Ohio, Cincinnati, 1902; of Owensville; died March 3, aged 37.

**James Everson Welliver**, Pulte Medical College, Cincinnati, 1877; president of the board of health of Dayton and a member of the surgical staff of the Miami Valley Hospital; died March 14, from pneumonia, aged 62.

# The Cleveland Medical Journal

VOL. XII

APRIL, 1913

NO. 4

## Dysmenorrhea

By J. H. CARSTENS, M. D., Detroit, Michigan.

Dysmenorrhea or painful menstruation is only a symptom. It is a very complex condition, which requires the best diagnostic acumen to find the cause which produces it. Being brought about by so many different conditions, it is quite natural that authors have different views, and have made many classifications in order to simplify the diagnosis by the general practitioner. Originally the mechanical obstruction view of the cause was prevalent and is to this day the first thing thought of when a case presents itself.

As gynecology developed it was soon demonstrated that obstruction was present only in a comparatively small number of the cases. By making examinations *during* the painful menstruation the uterus was found perfectly patulous and still the pain continued, so that other reasons had to be found in order to explain the origin of the trouble. Sometimes tumors and swellings were found and the trouble attributed to those; but in some cases there was apparently no condition that could explain matters, and so the profession fell back on neuralgia, called it neuralgia simply. But neuralgia itself is no disease; like dysmenorrhea, it is only a symptom, and therefore really explains only our ignorance of the origin of the trouble.

Probably the simplest way to arrive at the correct diagnosis is to divide the causes of dysmenorrhea into constitutional and local conditions. As a rule the local condition is the most common; therefore, we might take this up first.

The local causes of dysmenorrhea have been subdivided into different classes by different authors, but gradually have been reduced to a small number. The first on the list, which I suggested above, is the obstructive variety. This is generally a con-

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*Read at the meeting of the Academy of Medicine of Cleveland, Friday, January 17, 1913.*

genital condition, there is a very small internal or external os, or there is flexion of the uterus either forward or backward, which causes obstruction. This condition can be diagnosed without any examination as a rule; there is that intermittent spasmodic pain, recurring at irregular intervals, being relieved, to a certain extent, when there is an expulsion of clots or blood, and after a time, longer or shorter, the pain recurs. Frequently during this process dilatation takes place in the course of twenty-four hours, allowing the passage of blood and detritus without any pain for the rest of the menstrual period. In this class we could also place the so-called membranous dysmenorrhea, which is fortunately a rare condition, and is caused by more or less exfoliation of the lining membrane of the uterus, and although the uterus may be perfectly open the membrane causes obstruction and produces the same spasmodic symptoms as in the first cases.

We then have another class of cases, called inflammatory. The inflammation of the mucous membrane, that is endometritis, causes a dull aching continuous pain, often during the whole menstrual period, with more or less leukorrhœal discharge during the interval. This can be readily diagnosed on examination, but is not a common cause. The real inflammatory variety of most authors is the kind where there generally is an inflammation in the pelvis, of the tubes and ovaries, as the result of infection. This is quite a common cause of the trouble. As the result of monthly congestion the chronic inflammatory condition of the tubes and ovaries is aggravated. Even local peritonitis is produced as a result of a little leakage from the tube. This is generally relieved by plastic exudate walling in the infection, and in a few days the acute symptoms pass away. This is accompanied by fever and other evidences of sepsis. This septic inflammation, as we now understand it, is what the old writers used to call ovarian dysmenorrhea, although the ovaries had nothing to do with it. As a rule the trouble all was in the tube, and the ovary only secondarily affected, but frequently not affected at all. Pure ovarian dysmenorrhea is rare. I have seen only a few cases where the pain was only in the region of the ovaries during the menstrual period, frequently incapacitating a woman from her general work. Physical examination revealed nothing, unless the patient was very thin; then the ovary could be well mapped out and would be found to be small and very sensitive. If the patient is fleshy, I

have found it impossible to find the ovary and map out its size. Of course, these cases are only relieved by operation.

We then have another variety of dysmenorrhea which depends upon the state of the body of the uterus, the musculature. In the young we have a small uterus, that is, poorly developed, the so-called infantile uterus, causing a great deal of distress in some cases, and sterility when the woman gets married.

Then we have another variety where the uterus atrophies prematurely. I have found many cases in young women thirty to thirty-five years old, whose work has been especially mental, with little physical exercise; school teachers, stenographers, etc., seem to have a peculiar tendency to a development of painful menstruations. After menstruation has been well established and normal and painless for fifteen or twenty years it generally becomes painful, and in a year or two sometimes becomes so severe that the women are unable to follow their vocations. On examination the uterus is found to be small and hard.

If we get these cases early enough we can restore them to health and comfort by the use of the stem pessary, by giving the uterus something to do. It seems that the muscular tissue atrophies and is supplanted by an areolar connective tissue, a condition called by Thomas areolar hyperplasia. It has also been called chronic metritis, but there really is no inflammation at all. My theory has always been that the nonuse of the muscle results in a hardening and atrophy, as it does in any other part of the body.

All these various conditions so far mentioned are virtually mechanical, and require mechanical treatment of one kind or another. But do not let me be understood as advocating operative interference, or as thinking that operation is the only thing, which is by no means the case. The first great effort should be to bring about a correct physiologic condition of the system, no matter what the variety of dysmenorrhea is.

In young girls we must first bring about a correct mode of living. In our present complicated social life, especially in the larger cities, it is almost impossible to establish for the growing girl the simple life. Young women reaching the age of puberty should exercise, live in the open air and eat the proper food. In the larger cities they are required to attend school for long hours every day and if, after they get home, they thump the piano for so many more hours, they get little exercise and little fresh air;

at the same time the food is of the wrong kind or poorly prepared. If the girl belongs to the so-called upper society, she often attends functions and dances at night, and then gets insufficient sleep.

Then you have another class of girls who are poor, and whose ancestors have belonged to "the man with the hoe" class for seventeen generations. That is, they do not comprehend easily and study means hard work. They have but one attribute of the mind and that is ambition. They are bound to be teachers, or something like that, in order to help their parents. The acquiring of knowledge is very difficult; they work hard till late in the night, in order to know their lessons, and consequently are too much indoors, in poorly ventilated places as a rule. Their food often is insufficient and not of the proper kind; they are using all their growing energies for mental development, their physical organism is poor and weak. Their pelvic organs, being less essential to life, are neglected by nature; lacking proper exercise, their muscular system is feeble; they develop spinal curvature, general abdominal ptosis, and many other conditions, such as constipation, and all these again react one on the other, aggravating the condition of the whole economy.

Now, these are the most difficult conditions to manage and to change, but with the correct view the medical man can help these poor people in many instances. Their mode of living must be changed and improved. The girls' ambitions must be directed in other directions. Sometimes they must be taken out of school for a year and sent into the country. Their studies must be directed in other channels. In fact, there are a thousand and one ways in which conditions can be improved by tactful and researchful medical advice. It is better for a girl to have a healthy body than to be able to play the piano, read Homer in the original or solve a geometric problem.

It is not only the ordinary physiologic side which we must look into and correct; at the same time we may also find various diseased conditions which should be rectified at the same time by proper medication. Indigestion, especially, should be relieved; then that very common habit of constipation must be removed, and this is not always an easy matter, as the patients are so indifferent about it. Some of these patients are suffering from anemia and chlorosis, which must be subjected to the proper treatment. Other cases are suffering from constitutional conditions, may have tuberculosis, chronic malaria, syphilis or sepsis,



nervous conditions of various kinds, or they may suffer from chronic poisoning from lead, phosphorous, tobacco, etc. All these various conditions must be carefully searched for, and if found removed, so that we finally come down to the patient who lives a reasonable physiological life and is free from general diseased conditions, but simply suffers from dysmenorrhea.

It is hardly necessary for me to say that I have absolutely no faith in any of the remedies recommended so far for dysmenorrhea. I have tried them all, dozens of them for years, and only found occasionally slight temporary benefit. After many trials with these different remedies, I finally found that ergot seemed to give the best result and I settled down to two grain ergotin pills, three twice a day. To this I would sometimes add iron, strychnin, aloes, etc., as indicated. The ergotin given for several months seemed to do more good than anything I ever used in the way of medication, but do not ask me how it does it.

Some of the older textbooks used to recommend marriage and pregnancy for these cases, and there is no doubt that pregnancy cures most of them. The only trouble that I find is that these women *do not become pregnant*. Only a small per cent of them do in my experience. I have had many cases of married women who suffer severely from dysmenorrhea, caused by abnormal conditions of the womb. In fact I have always held that it was an imposition on a man to be asked to marry a woman who suffers from dysmenorrhea, or for that matter any other trouble. I have always held that she should first be cured and enter the marriage state with a clean certificate of health.

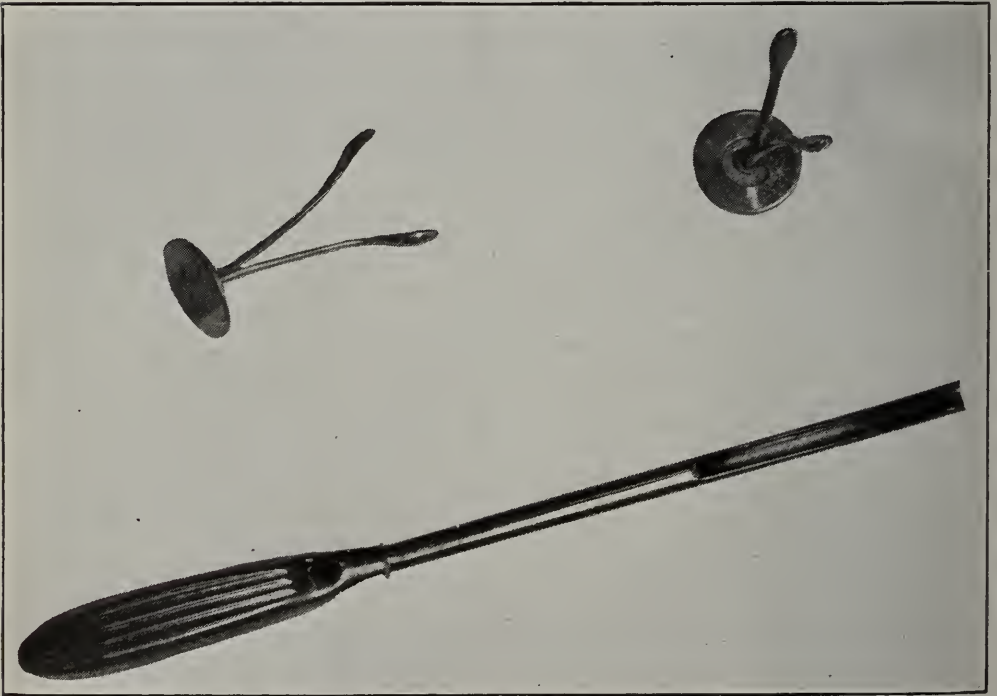
So at last we come to the final cases that cannot be relieved or are not relieved by normal physiology and scientific medication, but can only be relieved by surgery. If there is a cirrhotic ovary, that must be removed or resected. If there is a pus tube or pelvic abscess, it must receive the proper kind of surgery. Fibroids must be enucleated. These are generally simple and easy cases, in my experience, and are not so common.

The vast majority of cases are due to some abnormal condition of the uterus, of the kind stated above. There may be poor muscles or displacements; in the latter at the point of flexion, the muscles are atrophied or replaced by fibrous and cellular areolar tissue. Our work must be to develop the muscle and develop the uterus.

Athletes develop muscles by exercise, and thirty years ago I

called attention to the development of the uterine muscles in infantile uteri by the use of a small Notts dilator, dilating the uterus twice a week for a few minutes and continuing this for several months. However, this is quite painful and many women will not submit to it very long, and then they will relapse. Some of these cases of dysmenorrhea also are suffering from amenorrhea, skipping a period or two, or flowing very little. I read years ago (and I am sorry I never could find the article again) that putting a small string of beads in the uterus would produce an irritation and active flow. The thought finally came to me that if I could put a stem into the uterus and keep it there, I would produce a greater flow, develop the uterus, as I did with the dilator, could keep the uterus straight if it was anteflexed, and thus cure the patient.

Thus I began to try various stems, from the so-called electric, composed of copper and zinc, to the straight rubber, until finally I settled on the Chambers two branch, hard rubber stem. This I used for many years, but found that it was quite difficult to



Silver Stem Pessary and Introducer

keep in place, and I had to add a retroversion Thomas-Hodge pessary to keep the stem at a right angle to the vagina, so that it would be retained. I would keep these in three, four, six months or a year, and I took one out the other day that had been in for

four years. These patients would travel all over the country, or to Europe, or anywhere else, without knowing that there was such a thing in the uterus if I had not told them.

The only trouble I ever had was that the two arms would come together and the pessary would drop out, hence requiring the use of the retroversion pessary also. So lately I have tried silver stems, made in the same shape. These are alloyed to be elastic and to retain their shape after they are introduced. I have had only one come out so far, and I think they will work better than rubber.

Now, the great principle involved in the use of the stem pessary, as I look at it, is the development of the uterine muscles. There is a constant, even if slight, effort of the uterus to expel the foreign body, and it is remarkable how a small uterus two inches long and an inch in diameter will develop to normal size in the course of six months, if it contains a stem pessary. During this time there occurs some change in the mucous membrane, that enables the patients to become pregnant. It does not require a normal ovule and healthy spermatozoa alone, it also needs the proper soil for pregnancy to take place.

Naturally, in many of these cases we have two or more distressing ailments—in some instances scant and painful menstruations, or painful menstruations and sterility—so that we can kill two birds with one stone. Of course, I insist on thorough investigations and correct diagnosis; that must be understood. Whatever other conditions are present must be treated, such as anemia, indigestion, constipation, abdominal ptosis, etc. All organs must be restored to perfect condition, or as nearly so as possible.

Beware of pelvic inflammation or adhesion. I cannot emphasize this too much; all the bad results that have followed the stem pessaries are due to pelvic trouble. Pelvic diseases require abdominal section for diagnosis and relief. *The stem pessary is to be used only when the diseased condition is limited to the uterus.* In rare cases, when there is a little cervical endometritis, I curette and swab out the uterus with pure carbolic acid and then insert the stem.

The insertion of a stem pessary is painful, hence requires the use of an anesthetic. The patient is prepared in the usual manner, cathartic, antiseptic bath and so on. Under the influence of anesthesia (I myself use nitrous oxide gas and ether), the vagina

is scrubbed, and I then measure the length of the uterus and select a stem (there are three sizes) a quarter of an inch or more shorter, so that the point cannot touch the fundus. Then the uterus is dilated, first with Notts dilator, then with a Goodell-Erlanger, the stem fixed in the introducer and inserted until the button at the end touches the cervix. By putting your finger on the button you hold it and pull out the introducer and the stem is in place. If a retroversion pessary is needed it is now inserted, although with the silver stem it would rarely be required. The patient is kept in bed twenty-four or forty-eight hours, and then allowed to move about and follow her usual vocation. I use carbolyzed douches for a day or two, but not afterward, unless there should be some discharge. Some women have this after menstruation for a short time, and they can use injections then, but not otherwise. I never could see any need of the continued use of a douche.

In conclusion I would say:

- 1, To treat dysmenorrhœa successfully the physician must be an all around diagnostician.
- 2, The patient's mode of living must be made normal, or as nearly so as possible under existing circumstances.
- 3, Careful diagnosis must be made of all abnormal conditions of the system, and these must be removed.
- 4, Local pelvic trouble must be carefully differentiated, and treated according to modern scientific principles.

620 Woodward Avenue.

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**Militant Suffragettes: A Suggestion.**—The difficulties encountered by British authorities in the management of militant suffragettes suggest a solution to the problem by declaring insane the rank offenders in the destruction of property and other outrages. If we define insanity as a condition in which the subject is so mentally out of harmony with the general environment as to be unable to control conduct and to become a public danger, and if we attribute it to some nervous or mental disease affecting the judgment, some of these suffragettes would seem to fall under that head. For a woman of cultivation and social standing the evidence would be much stronger than in the case of an ignorant working man. Confinement in a criminal asylum on such a charge would be far better than in a common jail with ordinary criminals. Asylum authorities are accustomed to treat the severest forms of sitophobia, and could manage a hunger strike far better than jail officers. The condition is apparently getting serious enough to make the suggestion of such a remedy a timely one, and we believe that it could be adopted with the evidence afforded without an undue strain even on the British laws. Woman suffrage may be a worthy cause; if so it will ultimately prevail, but the means now used in Great Britain are not helping it much.—*J. A. M. A.*

## The Toxic Dose of Salicylates According to Clinical Statistics

By PAUL J. HANZLIK, M. D.

(From the Pharmacological Laboratory of Western Reserve University, Cleveland.)

The current conceptions concerning the various factors which may influence the therapeutic effects of salicylates have not only been somewhat contradictory, but also unsupported by evidence. This has led us to inquire into the relationship of various clinical factors to the clinically effective or toxic dose of these substances. Certain of the salicylates are believed to be more toxic than others. There is also a common idea that the toxicity is different in rheumatic fever than in other conditions. The relations of such factors as age, sex, race and diseased conditions to the toxic dose of the salicylates have been matters of conjecture. The influence of the toxic dose on the occurrence of albuminuria and the occasional pronounced idiosyncrasies have been scarcely understood at all.

For this study the clinical records of the medical service of the Lakeside Hospital have been utilized through the courtesy of the medical staff and hospital authorities. The records of about 400 patients (extending over a period of about twelve years) were used. The desired information about each case was briefly abstracted on cards.

The toxic doses for the different salicylates were tabulated from all of the available records and the "mean" or "median" toxic dose was determined by the statistical method of Laplace as described in Scripture's *Psychology*<sup>1</sup>. According to Professor Scripture this method is better suited and more accurate for biological statistics than the arithmetical average. In determining the average median dose, all the doses in a given group are arranged in ascending order. For instance, 45, 60, 60, 140 (grains) represents a series of doses. There being four cases, the middle or median dose would be between the second and third of the series, namely 60 and 60. Had there been five doses, the middle value would be the third number, i. e., 60. Exactly

<sup>1</sup> Scripture, E. W.: *The New Psychology*, 1897.

the same procedure is used however large the number of cases in a group.

In this paper detailed discussions of the data and presentation of various tables and summaries will be omitted. A summary of the various results will be more desirable.

One of the most distinctive features of salicylate therapy is the production of toxicity by these substances. The method of procedure differs somewhat in different hospitals. In this hospital, the routine of administration consists of giving the salicylate in 10 to 20 grain doses every hour or two (usually in conjunction with sodium bicarbonate) till the onset of toxic symptoms, i. e., gastric or ear effects. In this way a dosage of 200 to 250 grains would be reached within twenty-four hours. Then the medication is stopped. Later it may again be resumed in the dosage of 10 to 20 grains every four hours, aiming in this way to maintain the patient under the therapeutic influence. A routine clinical examination of the urine is made at the same time.

The mean toxic doses of the different salicylates for males and females, respectively, were found to be as follows: 180 and 140 grains of the synthetic sodium salicylate; 200 and 135 grains of the "natural" sodium salicylate; 120 minims of the methyl salicylate or oil of gaultheria; 165 and 120 grains of acetylsalicylic acid or Aspirin; 100 and 83 grains of salicylosalicylic acid or Diplosal.

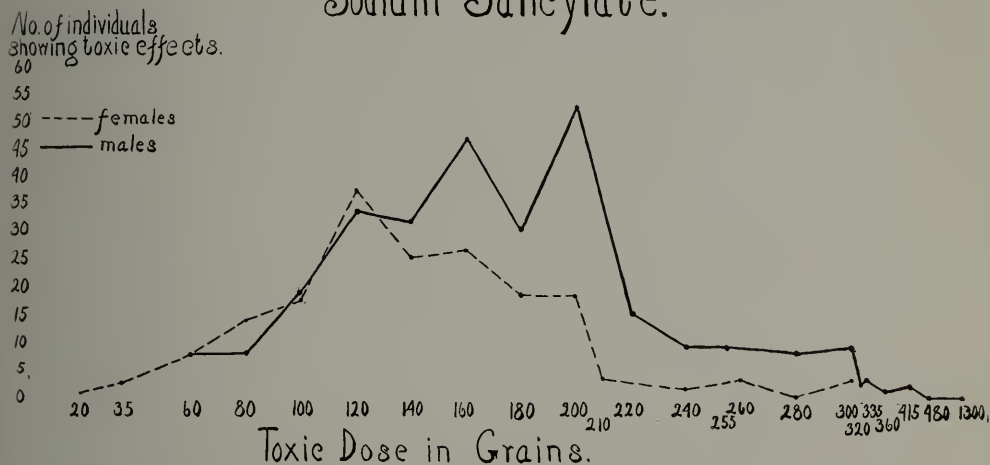
It is seen that the salicylic esters are effective in much smaller doses than sodium salicylate. The toxic (and incidentally the therapeutically effective) dose of salicylosalicylic acid or Diplosal is about 50 per cent, that of methyl salicylate and acetylsalicylic acid or Asprin about 60 per cent of that of sodium salicylate. Conversely, the efficiency of Diplosal is about twice, that of methyl salicylate and acetylsalicylic acid about one and two-thirds of that of sodium salicylate.

If the toxic dose for females is expressed as percentage of the toxic dose for males, it gives for synthetic salicylate, 78 per cent; Aspirin, 73 per cent; methyl salicylate, 100 per cent; Diplosal, 83 per cent. This shows that the toxic dose of the salicylates is approximately 80 per cent of that for males, corresponding very well with the average adult difference of weight in the two sexes<sup>2</sup>.

<sup>2</sup> Vierordt: *Daten und Tabellen*, 1893.

As indicated by the accompanying curves, the toxic dose of the synthetic salicylate for the majority (about 68 per cent) of male and female individuals lies between 100 and 200 grains.

## Range and Distribution of Toxic Doses of Synthetic Sodium Salicylate.



Outside of this range, comparatively small and large doses are confined to the minority. The course of the curves also indicates that more males than females tolerate higher doses of the synthetic salicylate, and that more females than males become toxic on smaller doses. For instance, between a range of 100 to 140 grains sixty-four females, or 50 per cent, become toxic as against sixty-six males, or 33 per cent; between 140 and 200 grains, sixty-five females, or 50 per cent, become toxic as against 131 males, or 67 per cent. Practically the same holds true for the methyl salicylate and probably also for Aspirin, Diplosal and "natural" sodium salicylate.

There is no relation between the toxic dose of the different salicylates and ages between 16 and 75 years.

No difference was found between the toxic doses of the synthetic salicylate for adult individuals of the black and white races.

The toxic doses of the different salicylates were found to be practically the same in various diseased conditions of both sexes. In all conditions where there were three or more cases, the toxic dose of the synthetic salicylate ranged between 150 and 220 grains for males; between 135 and 180 grains for females. Practically the same is true for the "natural" salicylate and methyl

salicylate. The number of cases for Aspirin and Diplosal was rather small, but the conclusion probably also holds for these salicylates.

The therapeutic response (or clinical therapeutic result obtained after a toxic dose) in various diseased conditions does not modify the toxic dose of the synthetic salicylate. The therapeutically effective doses, just as the toxic doses, are somewhat smaller for females than for males.

The therapeutic efficiency of the synthetic salicylate is greatest (82 per cent) in acute rheumatic fever. Subacute rheumatism and other conditions are also relieved, often completely, but the percentage of complete successes is not nearly as great (41 to 53 per cent) and the percentage of failures much higher (16 to 29 per cent). In sciatica, no complete relief was obtained, but the majority (about 73 per cent) of patients showed more or less relief.

The administration of salicylates is believed by some to cause renal irritation and albuminuria, while others believe that it may lessen albuminuria in rheumatic fever. Our data on this point were not wholly satisfactory, for in no case was there a record of the observation of albumin before administration of the salicylate. Notwithstanding this difficulty, an attempt has been made to throw some light on the occurrence of albuminuria in connection with salicylate. It was found that in males albuminuria was much more frequent (about 70 per cent) in febrile than in afebrile conditions. This suggests strongly that the renal irritation is due to fever, rather than to the salicylate. What part, if any, the salicylate plays in the production of albuminuria can only be settled when more carefully collected data are available.

It was stated in the first part of this paper that the toxic dose of the synthetic salicylate ranges between 100 and 200 grains for the majority of adult individuals of both sexes. However, many of the records show variations in dosage below 100 and above 200 grains. These records were examined with respect to the relations of such factors as age, sex, race and diseased condition to the variable doses. The effect of repeated dosage in the same individual was also studied. It was found that the differences in and the variability of the toxic doses of the synthetic salicylate below and above the common range of 100 and 200 grains, respectively, cannot be attributed to the influence of age, sex, race



and diseased conditions. The idiosyncrasy generally varies in the same person and is not influenced by previous salicylate medications. There was also no demonstrable habituation to the synthetic salicylate.

I wish to express my thanks to Prof. C. F. Hoover and to the hospital authorities, who permitted the use of the clinical records; to Dr. L. H. Taylor, Resident Physician, who in various ways helped me in gathering material; and to Prof. Torald Sollmann for valuable suggestions and criticisms.

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**Higher Preliminary Qualifications Assured.**—Recognizing the need of a better preliminary training for those who are to study medicine than that furnished by the usual high-school degree, the Council on Medical Education of the American Medical Association in 1904 prepared what it termed an ideal standard for admission. In addition to the regulation four-year high-school education this standard included a year in physics, chemistry and biology, and the securing of a reading knowledge of a modern language, preferably German or French. It was suggested that this additional year's work might be taken in either a college of liberal arts or in a preliminary year given by the medical school itself. At that time, although in practically every other civilized country this higher preliminary training was required, only four medical colleges in this country were exacting anything in advance of a four-year high-school education, and for a large majority of medical schools there were practically no entrance requirements. By June 1, 1912, however, forty-five colleges had put into effect this or higher preliminary standards, and several others had adopted it to take effect in 1913 or 1914. Ten state licensing boards also had adopted one or two years of preliminary work in addition to the four-year high-school education as their minimum requirement of preliminary education. At the annual meeting of the American Medical Association in Atlantic City in June, 1912, the House of Delegates adopted a recommendation instructing the Council on Medical Education not to include in Class A (among acceptable colleges) after Jan. 1, 1914, any medical school which was not requiring for admission "not less than one year of college credits in chemistry, biology, physics and a modern language, or two or more years' work in a college of liberal arts, in addition to the accredited four-year high-school course." At a regular meeting held in Chicago last month, the Council on Medical Education adopted a resolution that the work of this preliminary year should correspond in excellence and in content at least with the freshman year's work in our standard colleges and universities. A subcommittee was appointed to prepare a detailed outline of the minimum requirements for this preliminary year's work. At its annual meeting held Feb. 26, 1913, the Association of American Medical Colleges appointed a committee with power to act, to cooperate with the committee of the Council on Medical Education in the preparation of an outline of minimum requirements for the preliminary year's work, thereby going on record as favoring this advance requirement. The general adoption throughout the country of at least one year of work in the premedical sciences, in addition to the standard four-year high-school course, for admission to the study of medicine would now seem to be assured.—(*J. A. M. A.*)

## The Effect of Successive Ligation of the Renal Arteries on the Nitrogen Balance

By J. D. PILCHER, M. D.

(From the Pharmacological Laboratory of Western Reserve University, Cleveland)

The effect of the excision of various segments of the kidney has been studied by several observers, notably Bradford<sup>1</sup>, Bainbridge and Beddard<sup>2</sup>, and Pearce<sup>3</sup>. All agree that removal of three-fourths of the total kidney substance results in death within a few weeks. In such animals Bradford found an increased output of nitrogen (as urea). These observations were not confirmed by other investigators, who were, therefore, unable to agree with Bradford's suggestion that the kidney has an influence on nitrogenous metabolism, but attributed the increased nitrogen excretion to inanition only. Successive ligation of the renal arterial branches, by minimizing complicating operative factors, offered a better chance of solving the effect of throwing a part of the kidney out of function.

Methods: The observations were made on one cat and one dog, both full grown. The cat was fed hashed beef and the dog ordinary dog biscuit, the nitrogen content of which was determined by the Kjeldahl method. The animals were kept in the usual metabolism cages. The urine was examined daily with the cat, and two or three times weekly with the dog, but daily shortly before operations. The urines were preserved in strong sulphuric acid when kept longer than twenty-four hours.

After determining the nitrogen excretion for suitable periods (two weeks with the cat, three to five with the dog), successive branches of the renal arteries were ligated under anesthesia. At intervals of two weeks three of the four arterial branches in the cat were ligated. Marked prostration followed the third operation, so that observations were discontinued (during the summer), until the animal had returned to normal. Ligation of the fourth and last remaining arterial branch about one year later resulted in severe nausea, vomiting and collapse, with death in

<sup>1</sup> Bradford, J. R.: *Jour. Physiol.*, 1898-9, XXIII, 415.

<sup>2</sup> Bainbridge, F. A. and Beddard, A. P.: *Proc. Royal Society*, 1907, LXXIX, 75.

<sup>3</sup> Pearce, R. M.: *Jour. Exper. Med.*, 1908, X, 632.

twenty-four hours. Following the first two operations, the dog lost considerably in weight, so that nitrogen determinations were not made until recovery. At the second operation one entire artery was ligated with similar prostration as mentioned above with the cat and quite similar to that described upon removal of three-fourths of the renal tissue at one operation. Death ensued within two days subsequent to the last ligation. In neither animal was there peritonitis at autopsy.

**The Nitrogen Excretion in the Cat:** This remained practically normal until the third operation, which threw, in all, three-fourths of the kidney tissue out of function. During the prostration following this operation the nitrogen excretion greatly exceeded the intake and may be attributed to inanition, as described by Bainbridge and Beddard; and not to a diminution of an internal renal secretion, as suggested by Bradford. Following this period, the cat gained in weight from the normal 3300 grams to 3800 grams and the nitrogen excretion returned practically to normal. Inasmuch as death ensued so promptly (in about twenty-four hours) on ligation of the last remaining arterial branch, it follows that, in this case, occlusion of one branch of the renal artery does not result in sufficient collateral circulation from the capsule to preserve the function of the ligated area, so that, after one year it is unable to preserve life, even for a short time, if the renal artery is then ligated.

**The Nitrogen Excretion in the Dog:** This remained normal after recovery from the first ligation, but fell 13 per cent below normal after the second ligation, at a time when one kidney had atrophied and one branch of the opposite side had been ligated. Inasmuch as the dog died within forty-eight hours after ligation of the last renal arterial branch, and without sepsis, it can be deduced that during the seven months' interval between the ligation of the two branches, as in the cat, there was not formation of sufficient collateral circulation from the capsule to preserve the function of the ligated areas.

Following the successive ligations the quantity of urine remained about normal in both animals. Immediately preceding the final ligation there was no albumin nor casts in the urine.

Partial nephrectomy in dogs has been followed by considerable rise in blood-pressure<sup>4</sup> and it would seem that such increased pressure probably would be associated with cardiac hypertrophy.

<sup>4</sup> Janeway, T. C.: *Soc. Exper. Biol. and Med.*, 1908, VI, 109.

In this work no blood-pressure observations were attempted; however, it might be inferred that such marked loss of kidney substance would result in increased blood-pressure and cardiac hypertrophy. Such hypertrophy did not occur in the cat. Joseph<sup>5</sup> gives the ratio of the heart weight to the body weight in twenty-six cats as 0.457 per cent; in this laboratory a similar average in twenty cats gave 0.40 per cent. The ratio in the cat under discussion was 0.44 per cent. The dog reported had a fairly large goiter, so that similar observations are negated. However, the ratio was markedly increased—1.44 per cent, as compared with 0.743 per cent reported by Joseph.

Conclusions: Ligation of one of the branches of both renal arteries, i. e., approximately half of the blood supply, does not cause any noticeable disturbance in renal function. The urine and the nitrogen excretion remain practically normal, with a slight tendency to nitrogen retention, which is probably not accidental.

Practically one-fourth of the kidney was able to secrete urine almost as effectively as the total kidney substance.

Occlusion of one branch of the renal artery does not result in sufficient collateral circulation from the capsule to preserve the function of the ligated area, so that even after twelve months it is unable to preserve life if the renal artery is then ligated.

<sup>5</sup> Joseph, D. R.: *Jour. Exper. Med.*, 1908, X, 521.

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**Absorption of Arsenic.**—Intramuscular injection of salvarsan and neosalvarsan in rabbits always produces necrosis of the muscles. A much more intense reaction is produced by salvarsan than by neosalvarsan.—The rate of absorption of arsenic following intramuscular injections of salvarsan is very slow, while following intramuscular injections of neosalvarsan between 75 and 85 per cent of the arsenic is absorbed during the first week. The subsequent absorption is quite slow.—Homer Swift in *Jour. Exper. Med.*

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**State Control of Tuberculosis.**—The Tuberculosis Commission appointed by the State Board of Health of California, in addition to general recommendations for the future, has advised the following as immediately necessary: 1, A Bureau of Tuberculosis. 2, Improvement of the county hospital facilities for the care of advanced cases. 3, Amendment of the county law permitting county supervisors to pay \$40 per month (instead of \$30) to private sanatoria for selected cases. 4, The appropriation of a fund for the use of the Bureau of Tuberculosis for cooperation with the counties in providing district sanatoria or equivalent facilities; and for aid in cases of those indigent patients clearly not "residents" of any one county. 5, Finally, it is recommended that any bill which may be drafted, should contain a provision permitting the acceptance by the Bureau of Tuberculosis of special endowments and gifts of money or suitable lands. If possible, also, authority should be granted to use or temporarily to occupy state lands for sanatorium and work colony purposes.

## Recent Advances in the Treatment of Lues

By H. N. COLE, Ph. B., M. D., Demonstrator in Dermatology and Syphilology, Western Reserve University, Cleveland.

I am taking as my subject one of the oldest diseases in history, for probably some of the unclean diseases mentioned in the Bible were lues, though this is of course unprovable at the present time and is merely affirmed by some and denied by others. The European appearance of syphilis is explained in one of two ways—either it was brought there by the Crusaders from Asia or it was carried in by Columbus from the New World. This is a much discussed point but suffice it to say that the disease had its beginning many hundreds of years ago and that despite this fact we still have much to learn concerning the affection.

As long ago as the sixteenth century mercury began to be used empirically in the treatment of lues and it is said the first man to have so used it gained great fame and fortune for his powers. From then up to practically the present date little advance was made in the management of the disease and it is only since the discoveries of the last decade that we have really been able to go at its treatment in a truly scientific manner, though for the past thirty or forty years Fournier, Ricord and several others have done much toward diagnosis, treatment and prophylaxis. Thus Ricord emphasized the value of the injection route in the treatment and Fournier is known everywhere for his writings on the subject of lues, especially the congenital type, and for his intermittent method of handling the disease. He believed that continuous treatment rendered the patient tolerant to mercury after some time and that the results were not so good as when mercury was given in intermittent courses. Even today his methods and teachings are used and admired.

But what, may be asked, has done so much to influence our modern methods of treating the disease? First place probably should be given to the discovery of *Treponema pallidum* by Schaudinn and Hoffmann in 1905. For years and years investigators had worked on this problem and it is since Schaudinn's monumental discovery that we can date our real advancement. Through this discovery we are enabled by means of the dark field illuminator and by means of suitable stained preparations to find the organism at the inception of the disease and thus save

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*Read by invitation before the Four County Medical society at Bellevue, Ohio, March 7, 1913.*

weeks and weeks of time waiting for more definite symptoms or for a positive Wassermann reaction. This is very important, for we are beginning to realize that the earlier we can start treatment the better is the prognosis for the patient. For example, in a case at our clinic at the Lakeside Hospital, and of which I will speak later, the writer was able to find the organisms the third day after the pinhead sized sore had appeared and thus much valuable time was saved.

Secondly, we should lay great stress on the work of Metchnikoff and Roux, it being really a stepping stone to Schaudinn's discovery. I refer to their studies on the inoculation of syphilis from man into the lower apes. Neisser<sup>1</sup>, working under a grant from the German Government in the Dutch East Indies, Levaditi and others also did much to further our knowledge along these lines.

Thirdly, and perhaps one of the greatest advances that has been made in our handling of syphilis, was the utilization by Wassermann, Neisser and Bruck of the Bordet-Gengou complement deviation phenomenon for what we now know as the Wassermann reaction. True enough, this test is not infallible, for in a certain percentage of cases, especially of the very early and late cases of lues, it reveals nothing. Moreover, it is so complicated that it should never be attempted except by very well-trained men and never outside of clinics where one always has at command plenty of known positive and known negative sera. This is unfortunate and let us hope that in the near future a simpler test, perhaps on the line of a cutaneous reaction test, may be found that can be used by the general practitioner. But be that as it may, with the Wassermann reaction in our hands we are in a position to say definitely in a large number of our latent secondary and tertiary cases, hitherto undiagnosed, this patient does or does not have lues. This is a very great advantage and I believe will tend to lessen the parasymphilitic diseases in the coming generation.

Fourthly and lastly let me mention Ehrlich's researches on the value of the arsenic preparations in the treatment of protozoan and allied diseases. This point I will discuss, more in detail, later.

Now keeping these four great discoveries in mind, what bearing do they have on the modern methods of treatment?

<sup>1</sup> Neisser, A.: "*Beiträge zur Pathologie und Therapie der Syphilis*". Berlin, 1911, Julius Springer.

Thanks to the work of Neisser, Levaditi, Metchnikoff and others on apes we now know that mercury, working as a parasiticide, is a specific for *Treponema pallidum*. Perhaps, also, its tonic action on the system may have some influence in building up the reactive powers of the organism. Since syphilis is a parasitic disease, mercury is indicated not only in the secondary stage, but also in the primary and tertiary stages. Outside of the arsenic preparations, which have recently come into use and of which I will speak later, there is no drug that has so marked, so rapid and so beneficial a result as mercury. Potassium iodid in the tertiary stage may cause lesions to disappear rapidly but it has absolutely no effect on the cause of these lesions and should be given secondary place as compared with mercury or even should not be used. The question then comes up, how should the drug be given, i. e., in what manner and in what preparations? We must not forget that it is a powerful drug, that some people have an idiosyncrasy for it and that fatalities have been reported from its use, even as from the newer arsenic preparations. The patient should clean the teeth thrice daily, the physician should examine them frequently and enquire as to gastrointestinal symptoms. Moreover, the urine should be examined at each visit and in a nephritic mercury must be used with great caution. Remembering then these cautions and in answer to the question as to the use of mercury, I believe I am safe in saying that with a few exceptions syphilographers are now in favor of mercury by the intramuscular route. Up until a few years ago it was the custom to employ the drug by the oral method—the protoiodid, the bichlorid, the binodid, etc. Empirically this was found to be slow and uncertain and now that we have the Wassermann reaction it is not uncommon to meet with a patient with a positive Wassermann, after he or she has been taking mercury by mouth for months or even years. Or again, a tertiary lesion suddenly appears, perhaps right in the middle of the treatment. The oral method is too uncertain. One is never sure of the amount of absorption, especially when tablets are used. The patient is not enough under the physician's care, there is more gastrointestinal irritation by this route and the big question comes up—how well is the patient carrying out my orders? In dispensary work this is particularly the case. I would give but one exception to this rule and that is in early congenital cases. The babe frequently does not take injections well, inunctions may or may not be ab-

sorbed and Osler's advice to use Hydrargyrum cum creta is well taken.

Inunctions in adults, on the other hand, are not so bad and in one stage of lues, the fresh secondary, may even be advisable for a short time as Unguentum hydrargyri has a direct parasitic action on the treponemata present in the cutaneous lesions. However, the method is dirty, it takes a large amount of time which the patient will generally slight, and it leads to discovery in a disease that the patient often wishes to conceal. And here too we are not sure how much of the mercury is being absorbed.

This then brings us to our point, the injection treatment of syphilis, and here two methods are open to us, namely, the use of the soluble or of the insoluble salts of mercury. Much discussion has arisen as to their respective values. The adherents of the soluble salts maintain that there is better absorption with their preparations, that there is less pain and that there is no cumulative action as sometimes happens with the insoluble salts when care is not taken. I might say that with most of the soluble salts an insoluble mercury albuminate is formed after the injection into the muscles, so that if one really wishes to use a soluble preparation a double salt must be used as in the following prescription:

Hydrarg. biniodidi  
 Sodii iodidi aa grams 2 ( $\frac{1}{2}$  dram)  
 Aquae destillatae ccm 100 (3 ounces)  
 Misce. 1 ccm (16 minims) equals 0.02 gm ( $\frac{1}{3}$  grain) mercury  
 biniodid. 0.5 ccm (8 minims) equals 0.01 gm ( $\frac{1}{6}$  grain) mercury  
 biniodid.

Neisser<sup>2</sup> recommends the use of Asurol (a double salt of mercury salicylate and sodium amidooxyisobutyric acid), which has a mercury content of 40.3 per cent. One usually injects 0.1 gm ( $1\frac{1}{2}$  grain) two or three times a week. And on account of the pain sometimes present after the injection, it is Neisser's custom to draw up 1 ccm of a 10 per cent Asurol solution and 1 ccm of a 2 per cent Novocain solution into the same syringe and inject them together. In cases where he is especially anxious to get the disease under control does he use this remedy.

Gaucher, in the clinic at l'Hopital St. Louis in Paris, employs a 1 per cent aqueous solution of mercury cyanate and in-

<sup>2</sup>Neisser, A.: "*Über moderne Syphilistherapie, mit besonderer Berücksichtigung des Salvarsans*". Halle a. S., 1911, Carl Marhold.



jects 1 ccm (15 minims) intravenously every day. He claims to get good and quick results and this practice is carried on quite extensively in Paris, but to the writer seems a little dangerous and not to be employed outside of a hospital at least. The soluble salts of mercury are probably as powerful as any drugs at our command in the treatment of lues—when used for a short time. However, to get good results they must be injected daily—a course that is almost out of the question, except with bed patients.

With the insoluble drugs, on the other hand, the patient comes to the office once or twice a week and receives an injection of mercury salicylate, of calomel, of mercury thymol acetate or of the gray oil. His care of the disease, outside of a hygienic life and careful cleansing of the teeth three times a day, is then over. As I have already said, we now know that syphilis is a parasitic disease, we also know that mercury is a specific for it. This is the day of “chemotherapy,” and, putting two and two together, mercury should be used in doses just as large as the patient can stand. This has been especially emphasized by Neisser<sup>2</sup> and I am adding a chart taken from a recent monograph of his on this very subject.

Hydrargyrum Preparations for Injections.

Drugs.	%Hg.	Usual Dose.	Hg. Content Same. gm	
Hg. Benzoate Oxyd.	1%.....	43.5	1.0 ccm	0.00435
Hg. Cyanat. Cryst.	1%.....	79.36	1.0 ccm	0.007936
Hg. Oxycyanat.	1%.....	85.47	1.0 ccm	0.008547
Hg. Sublimat. or Biniodid	1%.....	74.00	1.0 ccm	0.0074
		74.00	2.0 ccm	0.0148
		74.00	5.0 ccm	0.037
Hg Salicylate	10%.....	59.00	1.0 ccm	0.059
Hg. Thymol Acetate	10%.....	57.00	1.0 ccm	0.057
Calomel	10%.....	85.00	1.0 ccm	0.085
Asurol	5%.....	40.0	1.0 ccm	0.02
		40.0	2.0 ccm	0.04
		40.0	3.0 ccm	0.06
Oleum Cinereum	40%.....	Pure	0.125 ccm	0.07
	40%.....	Pure	0.25 ccm	0.14

With the different drugs the following amounts of mercury are given in a six weeks' course:

With forty-two injections of 1.0 ccm each of a 1 per cent mercury sublimate or biniodid solution, 0.42 gm sublimate, 0.31 gm mercury.

With fifteen injections of 2.0 ccm each of a 5 per cent Asurol solution, 1.5 gm Asurol, 0.61 gm mercury.

With fifteen injections of 3.0 ccm each of a 5 per cent Asurol solution, 2.25 gm Asurol, 0.91 gm mercury.

With eleven injections of 1.0 ccm each of a 10 per cent mercury salicylate suspension, 1.1 gm mercury salicylate, 0.65 gm mercury.

With eleven injections of 1.0 ccm each of a 10 per cent calomel suspension, 1.1 gm calomel, 0.94 gm mercury.

With five injections of 0.25 ccm each of *Oleum cinereum*, 0.70 gm mercury.

As will be noted from this chart the first preparations are the soluble ones, after which comes mercury salicylate which Neisser believes to be a moderately soluble salt, then mercury thymol acetate, calomel and *Oleum cinereum*, which are insoluble. The *Asurol* is a proprietary soluble remedy which is placed in the lower part of the column because of its high mercury content. All of the insoluble preparations are good, but of course the ones having the largest mercury content are the ones to be selected. Gottheil, of New York, is a firm believer in mercury salicylate but, as I have already said, it is more or less soluble. Mercury thymol acetate works very nicely in a 10 or 20 per cent suspension in *albolene*. Calomel is one of the most powerful drugs in the syphilographer's armamentarium but it is so painful that it cannot generally be used for more than two or three injections; moreover, it is liable to cause sterile abscess formation. But it is of the gray oil or *Oleum cinereum* that I wish especially to speak. This preparation, at present much used by the French and Germans, is probably the most active form of mercury that we have in the treatment of lues. However, it is very strong, it at times absorbs slowly, and should never be used for more than five weeks in succession. It is given in a dose of 0.25 ccm (4 minims) once a week to a strong man, or 0.125 ccm (2 minims) twice a week to a slightly built man or a woman. The patient's teeth should be carefully watched, the urine examined at each visit and the patient looked over carefully, for in a series of five injections of 0.25 ccm each he or she has received 0.7 gram (11 grains) of metallic mercury. If the preparation does not absorb well its use should be discontinued for some time and the injections, which are made in the buttocks, should never be twice in the same place.\*

This preparation, 40 per cent in strength, consists of four parts each of metallic mercury and lanolin thoroughly incorporated together and then two parts of *Oleum olivae* added. Being so concentrated it is necessary to use a special syringe for the in-

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\*In diseases of the internal organs (kidneys, intestines, liver), in chronic intoxications (alcohol, lead, tobacco, etc.) and likewise in old people, cachectics, cases of gout, arteriosclerotics, the tuberculous and in pregnant women with kidney disturbances it is probably better not to use gray oil.

jections, viz., the Barthelemy Record syringe. This little instrument has fifteen spaces marked off on it, each one corresponding to one-fortieth of a cubic centimeter so that for a dose of 0.125 ccm (2 minims) five spaces are given and for a dose of 0.25 ccm (4 minims) ten spaces are given. Oleum cinereum is solid at room temperature and requires heating and careful shaking before use. As I have said, the preparation absorbs slowly so that it is dangerous to give more than five successive weekly injections of 0.25 ccm, after which it is necessary to stop for five or six weeks, when they may be repeated. Ten injections constitute a course and two courses may be given in the first year. One cannot impress too much care on the user of this preparation, but if it be taken then one has an excellent remedy at hand and a drug that will control any and all cases. Then, too, it is the writer's custom in the respite between the first and second half of the course and, in an urgent case, in the middle of each week while the remedy is being used, to employ a soluble injection similar to the one I have already mentioned of mercury biniodid. Neisser recommends here the use of Asurol, but I am unable to see any advantage in his salt, which is moreover a proprietary remedy and more expensive. By this method the patient is continuously getting mercury into the system and in doses as large as he or she can stand. Moreover, it might be said of the Oleum cinereum that it is one of the most painless injection preparations of mercury at our command.

And now a few words in regard to Salvarsan and Neosalvarsan. This latter drug, No. 914, is more easily used, as it makes a neutral solution in distilled water, so that the drug is more easily prepared for injection. It may be used intravenously or intramuscularly, the former route being the one of choice, though the latter is suited to dispensary and office work but is rather painful. It is the writer's custom to dissolve it in a cold 0.4 per cent saline solution made from freshly sterilized, distilled water. Emery believes that the water should be distilled through hard Jena glass in order to prevent decomposition through the action of lead and copper salts on the drug. About 25 ccm of solution are used for each 0.1 gram and in dissolving the Neosalvarsan it should not be shaken as shaking it tends to cause decomposition and the formation of poisonous products. Some men prefer to dissolve the drug in sterile distilled water but Milian<sup>3</sup> has

<sup>3</sup> Milian: *Bull. de la Soc. fran. de Derm. et de Syph., Dec., 1912.*

lately reported a case of hemoglobinuria after this procedure, so it is better to use the istic solution in 0.4 per cent saline. As to the dose used, it is probably better to start off with No. 2 (0.2 gram of the old) in a woman and No. 3 (0.3 gram of the old) in a man. The drug should be repeated once a week or once every eight or nine days for four doses, raising the dose each time 0.1 gram up to a maximum of No. 5 (0.5 gram of the old) in a man and No. 4 (0.4 gram of the old) in a woman. If one is working with a primary lesion it is allowable to use even higher doses with the hope of healing the disease at once. There is no question but that Salvarsan and Neosalvarsan are very valuable adjuncts in the treatment of syphilis and I believe they are considered more highly in Europe than here in America. True, they do not cure the disease at one fell swoop, but in the writer's estimation one injection of Neosalvarsan in an early lues is as valuable as many mercury injections. In this country, especially, the drug has fallen into some disrepute of late and I would say that it must be used with care. Up to last November some three million ampoules of Salvarsan and 600,000 of Neosalvarsan<sup>4</sup> had been used and there had been some one hundred deaths reported<sup>5</sup>. In other words, a much smaller percentage of deaths than with anesthesia and of these one hundred not more than twenty could be ascribed to the drug and the others to improper selection of cases, etc. So we can unhesitatingly recommend these preparations, though they must be used with discretion and in carefully examined and selected cases. In the primary and secondary stages they should by all means be given as they have a very marked effect on the symptoms of these stages, as well as on *Treponema pallidum* and on the Wassermann reaction. Permit me to mention very briefly the history of a young man, J. S., who appeared at our clinic at the Lakeside Hospital. At the time of admittance he had two small, split pea, slightly indurated ulcerations of three days' duration in which it was possible to find a few treponemata with the dark field illuminator. The lesions were immediately excised and 50 per cent calomel ointment used locally, while internally to date he has received one No. 4 and three No. 6 Neosalvarsan injections intravenously and seven injections of 0.25 ccm each of Oleum cinereum. It is now over two months since the lesions appeared and he is apparently per-

<sup>4</sup> Darier, J.: *Bull. de la Soc. fran. de Derm. et de Syph.*, Nov. 7, 1912.

<sup>5</sup> Lerrede: *Bull. de la Soc. fran. de Derm. et de Syph.*, June, 1912.

fectly well; I have been doing his Wassermann reaction each week and thus far it has been always negative. The question now comes up—will this patient ever have a positive Wassermann or show symptoms of lues? Of course this is still too early to say absolutely but if he follows treatment conscientiously for a year, as he has thus far done, I believe I will be safe in saying almost positively, no. We have several similar cases under observation and it will be interesting to follow them out and see the final results. As a general rule, I believe it is good treatment to excise all primary lesions at once and remove all buboes. True, the organisms are generally already scattered through the system but the main focus is thus removed along with thousands of the invaders. It is always our treatment to use 50 per cent calomel ointment locally on the primary lesions as soon as fully diagnosed. However, it should never be done before this, for the calomel kills *Treponema pallidum* at once and thus removes all chance for a diagnosis with the dark field illuminator, thus forcing one to wait several weeks for more pronounced symptoms or for a positive Wassermann reaction. With doubtful lesions on the penis it is better to use some mild ointment, e. g., boric, until all doubt as to the character of the lesion is removed.

In the light of recent advances, then, the ideal treatment of a case of lues, being practically that used at several of the best known European clinics, would be somewhat as follows: The patient receives an intravenous injection of Neosalvarsan, the dose depending on the case and on circumstances. At the same time or even a little before, an intramuscular injection of Oleum cinereum, 0.125 ccm, is given and repeated in three days if well borne. The arsenic preparation is likewise repeated after eight days, though in a larger dose and twice again in the space of two weeks; while for four consecutive weeks the patient receives an intramuscular injection of 0.25 ccm Oleum cinereum. During all this time an injection of mercury biniodid, similar to the one already given, of one-fourth of a grain (0.015 gram) might be given the middle of each week, and in the respite of five or six weeks in the Oleum cinereum injections it could be used once or twice a week. Then another series of five injections of Oleum cinereum of 0.25 ccm each are made, one each week. One course of treatment is then finished and the patient is allowed a rest of a month, when a Wassermann reaction is tried. If then it be negative he is allowed to wait another month, when it is repeated.

If it still be negative, the patient is, notwithstanding, given an intravenous injection of Neosalvarsan and told to come back in two months for another blood examination. If it be still negative the question then arises: Is this patient cured, or not? We are still unable to settle this question definitely and I would suggest that at any rate another course of treatment should be given. Then if the blood still shows nothing, probably the patient is cured—though we must yet plead partial ignorance and it would be well to examine the blood every six months for a year or so. The last word has as yet not been said in connection with this pleomorphic disease and it is better to treat the patient too much than not enough. I believe the present attitude in Europe is to inject approximately 2.0 grams (30 grains) of metallic mercury into the patient's system in the first year's treatment and, depending on the case, if required, 1.0 gram (15 grains) in the next two years. However, we must remember that each case is one unto itself and it should be carefully studied and treated accordingly. We as physicians have been too lax and we must use more intensive and more prolonged methods in the treatment of our cases of lues. Especially with the early ones let us try to make the diagnosis sooner, to use heavier and longer treatment and to allow of no marriages until we are sure of a cure. Certainly no luetic should be allowed to marry before he has had at least one year of the most intensive treatment and before his Wassermann reaction has been negative for at least two years. This may seem rather severe but statistics prove the truth of my assertion. In this connection allow me to quote a recent report from Marie Kaufmann-Wolff<sup>6</sup> on her records of forty-five marriages. She puts the patients in three classes, viz: 1, wives of luetic husbands, the latter having been syphilitic before marriage or having contracted the disease extramatrimonially after marriage; 2, wives who have several times aborted or who have been the mothers of luetic children; 3, cases who belong to the type of "syphilis hereditaria." In forty-five cases so married, thirty are still living. Twice as many men as women are dead and among the men diseases of the circulatory organs were the cause of death in one-half of them. Two of them had tabes and two, still living, are suspicious of tabes. The greatest number of deaths were between the ages of 40 and 50. Of thirty still living, seventeen show signs of lues, thirteen not. In one of the cases

<sup>6</sup> Marie Kaufmann-Wolff: *Zeitsch. f. klin. Med.*, Bd., 75, Heft 3, 4.

the wife was infected seven years after the husband had contracted lues. Of eighty-one pregnancies from the marriages there have been twenty abortions, three early births, five stillbirths and twenty deaths in early childhood up to two and one-half years. Nine of the marriages have been childless, i. e., five of them have been sterile and in the other four there have been only abortions.

Out of curiosity I lately inquired from Doctor Clark, Director of the Cleveland State Hospital, the per cent of taboparetics admitted last year. There were fifty-three males and fourteen females, in round numbers 12 per cent of the total admissions. And so it is the country over. Syphilis is yearly sending thousands of our citizens to asylums and passing over stigmata to hundreds and hundreds of our children. We have been too lax in our treatment and it is high time for us to drop the protoiodid tablet and potassium iodid and to treat our patients with injections where we know how much mercury they are getting. Let us give them longer and heavier treatment and impress on them the perils of late syphilis when improperly treated. Only by closer relations between the specialist and the general practitioner, by greater publicity to the gravity of the disease and by more intensive methods of treatment can we hope to lessen this yearly toll of needless deaths and untold misery.

In conclusion the writer wishes to thank Prof. Wm. Thos. Corlett for the privilege of mentioning the cases quoted.  
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**Aims of General Medicine.**—1, To give a broad and comprehensive presentation of the essential, fundamental facts pertaining to the causes, effects, recognition, prevention and cure of disease and to correlate these facts with the fundamental sciences.—2, To demonstrate and develop the technical skill by which alone the facts are applied in the diagnosis, treatment and investigation of disease.—3, To develop the powers of observation, judgment, thoroughness, persistence and precision by which alone the facts and methods can be intelligently and fully recognized and applied.—4, To develop the powers of expression, oral and written, by which alone the results of observations may be made available to others either at once, or for future reference.—5, To instruct students in the use of medical literature and develop habits of study by which alone the graduate will continue to grow in knowledge all his life.—6, To give the student as much knowledge as possible of human beings into whose life he must enter in a much broader, more sympathetic relation than that of engineer to machine.—7, To inculcate the ethical and professional ideals of honor, self-respect, altruism and social consciousness without which medicine degenerates into a business or a trade.—Lyon in *J. A. M. A.*

## Conservative Surgical Methods in Operating for Stone in the Kidney

By WM. E. LOWER, M. D., Cleveland.

Renal calculi occur probably no more frequently today than in the past, yet everywhere more cases are seen and reported than ever before. This is due entirely to the advent of the newer and better methods of diagnosis, especially to the X-ray. No one would, at least no one should, now operate for supposed stone in the kidney on symptoms alone. He who does so will soon find that the renal colic which led him to operate may be caused by conditions other than stone in such a large per cent of cases that he will soon become discouraged at his failure to find stones.

Anyone with much clinical experience with cases of renal colic must have met many with all the classical symptoms of stone—as commonly given—and yet when the case is exposed to the X-ray no stone has been found, the cause of the symptoms being some other condition producing obstruction; for renal colic, as we know, is due to overdilatation of the ureter and kidney pelvis and not to the passage of the stone, as formerly thought. It is in just these cases that so many mistakes have occurred. In the absence of stone as revealed by the X-ray, the appendix vermiformis, if the pain happens to be right sided, has taken the blame and many an inoffensive appendix has been removed with no relief whatsoever in the symptoms. An aberrant blood vessel, an adherent ureter, a papilloma of the kidney pelvis, or a sharply kinked ureter has generally been the cause of the intermittent hydronephrosis, causing the renal colic.

In helping to elucidate these cases where no stone is found, the X-ray comes to our aid, for by the injection of some opaque solution, e. g., collargol, the ureter and pelvis are outlined and the point of obstruction usually determined.

The finding of stone by the Roentgen rays is not always an easy matter. It requires a well trained roentgenologist, both as to technique and interpretation, to decide the presence or absence of stone. I absolutely disregard any reports of having found stone unless I can be shown the plate and myself convinced that the picture is well taken and clearly proves the presence or absence of stone. I have seen a number of plates which patients



have brought with them, stating they had stone in the kidney or ureter, and when examined the plate showed only a blurred and indefinite outline of the ribs and spinal column, to say nothing of the soft parts. I always send such cases to some one whose skill is known and in a number of instances an entirely different interpretation has been made and rightly so, as demonstrated by operation. Occasionally, however, the X-ray fails to reveal the stone. This has occurred several times in my own experience. In two cases of ureteral calculi the X-ray failed to reveal the stone and within several weeks each patient passed a stone and was entirely relieved of his symptoms. In two cases of vesical calculi the X-ray was negative and yet a stone was found in each case by the cystoscope and confirmed by operation. In both cases the work was done by able roentgenologists. The composition of the stone and perhaps the concentration of the urine in the bladder were the factors causing the negative findings.

I shall not discuss here the various shadows along the course of the lower ureter that have been mistaken for calculi. Although this would be of great interest, it is not germane to the title of my paper. I do know, however, that with additional experience less mistakes are occurring.

Until we know more about the cause and how to prevent the occurrence of stone we must direct our attention to the treatment. No solvent has yet been discovered and until such a discovery has been made we must rely for relief upon the removal of the calculi. I do not think it advisable always to cut at once for stone in the kidney or ureter if the stone is small and it is a first attack of renal colic. We all have repeatedly seen small stones pass after taking large amounts of distilled water. On the other hand we must not wait too long, else the kidney becomes incurably damaged from infection or from back pressure.

Nephrotomy, the method formerly most in vogue for the removal of renal calculi, is not, in my estimation, the best method of dealing with this condition in the majority of cases. Most renal calculi can be removed through the pelvis of the kidney—and this should be the method of choice except in such cases where the stones are imbedded in the cortical substance, and in these cases, if there is much infection, and the other kidney is normal, nephrectomy and not nephrotomy should be the operation of choice.

This may seem like a radical procedure but when we come to analyze the statistics of operations for unilateral renal calculi with infection we find the so-called radical operation has the lower mortality rate and a much shorter convalescence. In a list of operations gathered from general medical literature we find the following results:

Of 135 nephrotomies for renal calculi there were 25 deaths, 69 recoveries, 20 persistent fistulae, 16 secondary nephrectomies, and 5 with return of symptoms.

Of 143 nephrectomies for calculi, there were 25 deaths, 114 recoveries and 4 fistulae.

Comparing the deaths and complete recoveries, we have a mortality rate for the nephrotomies of 26.59 per cent, while that from nephrectomies is 17.91 per cent, a mortality rate of nearly 10 per cent higher for the so-called conservative operation.

It is my judgment that a badly infected kidney with multiple stones—if its mate be healthy—had better be removed than have a nephrotomy done.

The operation of choice, however, as previously stated, and which probably can be done in most cases—especially if the stones be in the pelvis of the kidney or the calyces—is pyelotomy. The former fear of a permanent urinary fistula after this operation can be disregarded and is less likely than after nephrotomy. The operation is easier and simpler than nephrotomy, and certainly less damaging to the kidney. If the kidney can be brought well out into the wound, the pelvis can be opened and with a flexible dullspoon curette the different calyces can be searched and the stones brought down to the incision in the pelvis and removed. With an X-ray picture as a guide, giving the number and location of stones, there is very little danger of overlooking any. The pelvis may be sewed with absorbable suture or left open, as the surgeon may decide. My own preference it to close the pelvis, yet in several cases where no closure was made the wound healed readily without fistula.

The obstruction being removed the kidney will drain about as readily through the ureter as through an incision into the kidney substance. Occasionally, with a tightly impacted rough stone in the pelvis, considerable damage may be done to the pelvis unless great care is taken, but even a badly damaged renal pelvis can be repaired by doing some plastic work, e. g., by using the perirenal fat and patching the lacerations.

In one of my cases in removing a very rough stone, imbedded in the kidney pelvis, the pelvis was so badly lacerated that it hung only by a shred. In this case I severed the small attachment and did an anastomosis connecting the trimmed edges. Union occurred, a small fistula remaining for only several weeks. Later I examined the patient cystoscopically and urine was seen coming from that side. He has had no trouble since.

Some of the dangers of nephrotomy are:—

1st, Bleeding. This has caused death a great many times and must be reckoned with as a dangerous factor. Israel, who has had such an extensive operative experience in surgery of the kidney, reports sixteen cases of hemorrhage following nephrolithotomy, five resulting fatally.

The cause of hemorrhage, according to Neuhauser, is due to blood-clot forming and obstructing the ureter; the pelvis and calyces become distended with urine, the kidney is put on tension, the cut edges separated and bleeding started. To control the hemorrhage in cases in which nephrotomy is indicated, I have found the use of the vessel clamp, which I devised some years ago, to be of the greatest service. It consists of a curved intestinal clamp, covered with rubber tubing and attached to the handle is a set screw. This regulates the pressure, and by this the bleeding can be absolutely controlled. When ready to close the kidney, the screw is loosened just enough to disclose the points of arterial bleeding and the spurting vessels are caught with hemostats, ligated with a fine absorbable ligature and the kidney closed with catgut suture. With the vessels thus tied we feel sure there will be no such alarming bleeding as often occurs. Besides, we are able to observe closely the field of operation.

2nd, Failure of wound to close, leaving a persistent infected urinary fistula, necessitating the wearing of some sort of urinal. In the list of cases previously referred to there were twenty persistent fistulae, about 18 per cent of the cases.

3rd. The danger of recurrence of stone. It is well known that recurrence of stone in infected kidneys is very common.

4th, The effect of a prolonged suppuration of one kidney upon its fellow. We know that prolonged suppuration anywhere in the body may have a very deleterious effect upon the kidneys, giving rise in many cases to the so-called surgical kidney.

The various tests of the kidney function show that a comparatively healthy kidney, relieved of the handicap of its diseased mate, will do more work than the two had been doing previous to the nephrectomy.

The most trying situations are the cases of bilateral calculi. It is in these that the greatest consideration must be given to the kidney substance. Nephrectomy is generally not to be considered; neither should nephrotomy, if it be at all possible to remove the stones by the way of the kidney pelvis.

It is rather surprising, however, how well these cases will tolerate surgical intervention if certain precautions are taken and not too much done at one time. If the ureters are catheterized and the separate kidney function determined, then the one doing the smaller amount of work should be operated first, and after a given time the second can be operated. I have operated for stone in the kidney on one side, removing it via the kidney pelvis and two weeks later removed a stone from the ureter on the opposite side, the patient having no untoward symptoms.

If in an occasional case a stone in the kidney cannot be reached through the kidney pelvis but can be located by palpation or otherwise, instead of dividing the entire kidney as by a nephrotomy, an incision should be made directly over the stone and the latter removed by cutting as little cortical substance as possible.

The mortality rate in doing pyelotomy is practically nil, as is also the operation of nephrectomy. In eighty-two cases of nephrectomy for various causes, I have had but one operative death and that was due to peritonitis following a tear in the duodenum in removing a very large adherent sarcoma. This operation should not have been attempted. Nephrotomy, however, carries with it a definite risk greater than either of the other operations and is due to causes I have already described.

We can then fairly conclude:

First: That pyelotomy is the operation of choice for renal calculi which can be reached in this way.

Second: That nephrectomy and not nephrotomy should be the operation and unilateral multiple calculi with severe infection.

## The Diagnosis of Cerebral Hemorrhage by Means of Lumbar Puncture

By OLIVER P. BIGELOW, A. B., M. D., Cleveland.

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In many cases it is difficult to decide, from clinical signs alone, between cerebral hemorrhage and a number of other conditions which may produce more or less similar appearances. Among these other conditions are cerebral lesions due to embolism, arteriosclerosis and lues; also uremia, epilepsy, diabetes, sunstroke, poisoning and meningitis.

Cerebral hemorrhage usually results in an escape of blood into the cerebrospinal fluid. In my own experience there have been found at autopsy ten hemorrhagic lesions which had ruptured onto an internal or external surface of the brain and only one in which this had not occurred. It would seem, therefore, that there are about ten chances to one for an escape of blood into the fluid.

The question might arise whether an escape of blood into a ventricle would make itself evident in the fluid filling the subdural space, the fluid which we obtain by lumbar puncture. Since there are well defined communications at the base of the brain between the ventricular system and the subdural space, we would expect that blood escaping under pressure into the former would find its way into the latter cavity; and this has occurred in all the cases which I have seen verified by autopsy. I have seen nothing in the literature to indicate whether there have been found exceptions to this rule.

In order to recognize a positive or negative finding in the spinal fluid we should remember that the mixture of blood and fluid must be a homogeneous one as it flows from the needle. If we find blood unevenly mixed with the fluid, it means that there is blood in the needle derived from the tissues through which it has passed or that a meningeal vessel has been injured by the needle. Or a vessel may be entered in such a way that pure blood is obtained. In the first case the blood will be washed out in a short time so that clear fluid may be obtained later; in the second, streaks or drops of blood will probably persist as long as the fluid is allowed to run; and in the third, pure blood will continue to flow. Another puncture is necessary in the last two cases.

The appearance of bloody spinal fluid varies greatly with the

amount of blood present and with the time which has elapsed since the hemorrhage has occurred. I have divided my series of cases into five different classes, based on the relative amount of blood present.

The first class of cases are those in which the amount of blood is very slight. The fluid, if obtained soon after the hemorrhage has occurred, is slightly cloudy, with a faint copper tint, and shows little currents in it when agitated. If centrifuged or allowed to stand for a day the cells form a slight red precipitate on the bottom of the container with clear and colorless fluid above.

But a little later, at some time between thirty-six hours and five days following the hemorrhage, a marked change takes place. The fluid obtained at this time is clear and of a bright canary-yellow color not at all suggestive of blood or hemoglobin. Microscopical examination shows the presence of a few red corpuscles (200, 460 and 570 per cmm in three of my cases); but the examiner, unless he has seen a similar case before, is apt to refer these cells to an accidental wounding of some vessel and still be at a loss to explain the peculiar yellow color.

That this color is due to a small amount of blood in the spinal fluid I was able to determine in a certain case where the conditions were those of a well planned experiment. At the first puncture in this case the fluid was clear and colorless. Next day another puncture was performed; and on this occasion a small vessel in the meninges was evidently injured, allowing an escape of blood into the spinal canal; for the fluid was streaked with fresh blood as long as it was allowed to flow. A third puncture, seven days later, yielded fluid of the canary-yellow color described above and containing two hundred red blood-cells per cmm. At the fourth puncture, thirteen days later, i. e., twenty days after the artificially produced hemorrhage, the fluid was found to be almost free from color and to contain sixty-five red cells per cmm. It would seem, therefore, that the yellow color may be expected to persist for about three weeks after a small hemorrhage has occurred.

It is not infrequent to see a slight yellow tint in the spinal fluid from general paretics without any history of a recent "stroke" or seizure. This is probably due to small hemorrhages under or into the meninges, such as are frequently seen at autopsy. In fact, I was able to verify one such case which came

to autopsy about three weeks after lumbar puncture had revealed blood in the spinal fluid. The dura lining most of the interior and middle cranial fossae was found to be mottled with small hemorrhages into its substance.

This yellow fluid gives a marked response to all the tests for proteids, dependent, evidently, upon the serum albumen and globulin contained in the escaping blood. The yellowish fluid in cases of paresis, as has been noted by various observers, also gives an unusually marked response to the proteid tests; but I have never seen it suggested that this might be due to an admixture of blood.

Cases showing a slightly larger hemorrhage than those just described make up the second class. If the fluid is obtained early there is a more marked turbidity, easily recognized as being due to blood. The color which appears after a few days is yellow, but may have a slight pinkish tinge, and turbidity persists longer than in the first class. The cases, two in number, which I have seen and would group under this heading showed 2,750 and 7,000 red cells respectively.

The color of the supernatant fluid, unlike the turbidity, seems to persist little if any longer than in the first group of cases. In one I have the following record: Fluid at first puncture quite turbid, supernatant fluid slightly yellow, 7,000 red cells per cmm. Four days later: fluid only slightly cloudy, marked yellow color, 2,440 cells per cmm. Eight days later: fluid clear, slight yellow tinge, 260 cells per cmm. Thus twelve days elapsed between the appearance of a slight yellow color and the subsidence of the color to the same point again. Nine days more or three weeks in all, would probably suffice for the color to entirely disappear.

The next or third degree of hemorrhage results in a quite marked opacity of the mixture of blood and fluid. Two of these cases in which a cell count was made showed 17,400 and 18,900 cells per cmm respectively.

The color which appears in the fluid differs considerably from that in the two previous classes of cases, as is shown by the following notes: Case I: Puncture thirty-six hours after the "stroke"; fluid colorless after the cells have settled out. Puncture seven days after the "stroke"; supernatant fluid is the color of weak "black" tea, i. e., yellowish-red. Some of the fluid from the first puncture, which was allowed to stand in a

test tube, showed a pinkish-yellow color four days after the hemorrhage had occurred. It is probable that the time required for this change to take place was not greatly different from what it would have been had the fluid remained in the spinal canal. In case II, puncture was performed five days after the "stroke": Fluid quite turbid; supernatant fluid is the color of moderately strong "black" tea. Nine days after the "stroke": fluid clear, color of weak "black" tea. Eleven days after the "stroke": fluid clear, color of weak "green" tea.

It will be seen that the color appears about four days after the hemorrhage has occurred, is yellowish-red or reddish-brown, like "black" tea and fades apparently about as rapidly as where the amount of hemorrhage is less. The turbidity due to unclaked red blood corpuscles persists from between seven and nine days.

In the fourth class of cases the proportion of blood in the mixture is as large or larger than that of spinal fluid. In my five cases which come under this heading, only one puncture was performed in each. All the cases terminated fatally, so that there was no opportunity of following the changes which might have taken place in the fluid.

In the fifth class I include cases of hemiplegia, ten in number, in which the "stroke," due to hemorrhage as far as I could judge, had occurred some months or years previously; also one case in which a central hemorrhage was found at autopsy. The fluid was clear and colorless in all these cases. The cell counts averaged higher than normal but the highest was only eight cells per cmm. The proteid content was within the normal limits in the six cases in which it was tested.

We have already considered the reliability of a negative finding in the spinal fluid and seen that there is about one chance in eleven that signs of hemorrhage will not make themselves evident in the fluid obtained by lumbar puncture. In regard to the reliability of a positive finding, I would say that out of nine cases diagnosed positive by lumbar puncture and which afterward came to autopsy, eight of them were verified and the remaining one was left in doubt. This last case showed blood in the spinal fluid at autopsy, but no point of hemorrhage could be found in the brain; if present, it was located in the spinal canal, which was not opened. The patient had suffered from a "stroke" in the street and never regained consciousness.

Conclusion: Cerebral hemorrhage can be detected by exam-



ination of the spinal fluid in perhaps 90 per cent of cases if the examination be made within three weeks after the "stroke." For the first four days or so there is a cloudiness or bloodiness of the fluid of varying degree, depending on the amount of blood which has escaped. Then a color, due to hemoglobin, varying from light canary-yellow to reddish-brown, appears and persists in some degree for about three weeks. After that time our only guide in the spinal fluid is a probable persistence for some time of a slightly elevated cell count and proteid content.

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### Examination of the Pelvic Organs in Doubtful Cases Through a Vaginal Incision

By HUNTER ROBB, M. D., Professor of Gynecology, Western Reserve University, and Visiting Gynecologist to the Lakeside Hospital, Cleveland.

Not infrequently we meet with cases in which the clinical history suggests some pelvic inflammatory disease, and yet after a careful bimanual examination we are not able to feel certain that the structures are adherent. At times, even on examination with the patient under complete anesthesia, this point cannot be determined, and as a result, we may be led to perform an unnecessary operation or advise against a procedure that in reality is imperative. On the one hand many an abdomen has been opened and no evidences of any inflammatory disease have been found, but on the other hand there can also be no doubt that a considerable number of patients have wrongfully been advised against operation because the structures did not seem to be enlarged or adherent. Oftentimes a small adherent tube and ovary may be firmly attached to the posterior surface of the broad ligament, and yet on bimanual palpation they seem to be movable, in so far as the broad ligament is movable. Again, in somewhat similar instances, one is able, seemingly, to separate the tube and ovary from the broad ligament.

Such being our difficulties, in my judgment, when we are still in doubt as to the condition of the tube and ovary, after a careful examination under an anesthetic, it becomes advisable to examine these structures through a vaginal incision, before subjecting the patient to the dangers, discomforts and expense of an

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*Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, Friday, February 7, 1913.*

unnecessary abdominal operation. For it is much better that a few adhesions should develop in the cul-de-sac, after a vaginal incision, than that the patient should be exposed to the dangers that attend any and every abdominal operation.

I shall now give a brief report of a few cases in which I believe that this procedure was indicated and was productive of good results.

Case I: Bilateral salpingo-oöphoritis.

Present Illness: Pain in the left lower abdomen had developed when the patient first got out of bed after a miscarriage. This had been present more or less ever since, but had been worse at the time of the menstrual period and after the patient had been standing for any length of time. The pain had been rather sharp and stabbing in character and always on the left side. The woman was weak and run-down and had had digestive troubles. On bimanual examination some slight resistance could be made out in either lateral fornix, but the lateral structures could not be satisfactorily palpated. On examination under complete anesthesia both ovaries could be palpated and they seemed to be slightly enlarged. The right ovary could be moved to a considerable extent, so that it did not seem to be really adherent. The left ovary was apparently freely movable. Neither organ, however, had the free play and mobility shown by normal ovaries. It was not possible absolutely to decide that the structures were adherent. I therefore made a vaginal incision, and on introducing the finger through the opening, I could at once make out some slight adhesions, binding the ovary to the broad ligament and to the tube. The abdomen was then opened, and the tube and the ovary on the right side were found to be adherent to each other and to the posterior surface of the broad ligament. The outer halves of both ovaries were not covered with adhesions, but the remaining portions were pretty firmly bound down by adhesions which were easily stretched. As there were a considerable number of cysts present in the right ovary it was thought advisable to remove the tube and ovary on the right side. The left ovary, which we had thought to be pretty freely movable, was also found to be considerably enlarged and was adherent to the tube and to the broad ligament. The adhesions on this side were not so firm as those found on the right, but the ovary contained so many Graafian follicle cysts, and the amount of ovary that had been exposed to the adhesions was so extensive that it seemed wiser to remove the structures on this side as well. The abdomen was then closed without drainage. Two small pieces of sterilized gauze were introduced into the pelvic cavity through the incision in the vagina. The convalescence was uninterrupted.

Case II: Right salpingitis with left salpingo-oöphoritis.

Present Illness: The patient began to feel sick soon after her marriage. For the past year she has had pain on the left side in the lower quadrant. There has been some leukorrhœa and backache in the lumbar region. The symptoms do not bother her much, but she desires to bear children, which is her main reason for coming to the hospital.

Pelvic examination under anesthesia: Outlet slightly relaxed; cervix in the axis; uterus sagging in the pelvis; fundus forward; uterus acutely anteflexed, freely movable but enlarged. Left ovary small and movable. Right ovary slightly enlarged, but apparently movable. On the right side there is some thickening which feels either like a hydrosalpinx or a cystic ovary.

On account of the indefiniteness of the findings on the right side a vaginal exploration was carried out, and showed many adhesions around the tubes. A tape was inserted in the cul-de-sac and the abdomen was opened. The lateral structures on both sides were adherent to the broad

ligaments. The right ovary showed a few adhesions but was fairly normal. The right tube was thickened, sealed, and distended with fluid. The left tube also formed a small hydrosalpinx; the left ovary was quite large and cystic. The right tube and left tube and ovary were removed.

The convalescence was uninterrupted. In this case one would have thought that the condition of the lateral structures, in view of what was found at the time of the abdominal section, could have been made out without the slightest trouble under complete anesthesia, but as a matter of fact a very thorough examination was made in the usual manner, before resort was had to an examination through the cul-de-sac.

Case III: Right ovarian cystoma, with pregnancy.

Present Illness: Fifteen years after the birth of her first child, the patient first began to complain of dragging pains and a sensation "as if the womb were coming out." She also had some pain in the lower abdomen, with backache and frontal headache.

On bimanual examination there was some tenderness in the right lower quadrant on deep palpation. The lateral structures did not seem to be adherent or enlarged.

Examination under anesthesia: The uterus was enlarged and freely movable and apparently back in the pelvis. It seemed to be softened and somewhat irregular in outline, feeling like a uterus containing a two months' pregnancy. The organ lay well to the right of the median line and simulated a cystic ovary. On account of the inability to palpate the lateral structures on either side, and as neither ovary could really be made out, I made a further examination through a vaginal incision, and found the uterus to be enlarged and soft, and the left tube and ovary normal. The right tube and ovary could not be made out until the examining hand was carried well up into the pelvis, when a taut-like narrow band could be felt attached to the posterior surface of the broad ligament on this side. On following this band up the fingers came in contact with a cystic mass, lying above the crest of the ilium, and near the renal fossa. The first thought was that this mass was a displaced and cystic kidney. On bringing the mass down it proved to be a cystic ovary the size of an orange, but it could not be delivered through the space between the pelvis and the uterus, until the cyst had been punctured and its contents allowed to escape. It contained a clear straw-colored fluid. The sac together with the tube was then tied off and removed. Gauze tapes were then applied to the cul-de-sac. The patient aborted twelve days after the removal of the cyst through the vaginal incision. The convalescence was otherwise uninterrupted.

Case IV: Right perioöphoritis.

Present Illness: The patient has been complaining of backache and pain chiefly in the right side of the lower abdomen and in the infra-costal region. The trouble has lasted some ten years, indeed since the birth of her two children.

Pelvic examination under anesthesia: Outlet slightly relaxed; cervix crosses the axis of the vagina; uterus small, forward, movable; left ovary about normal, movable; right ovary not distinctly made out, it seems to be deep in the pelvis.

Operation performed by my associate, Doctor Smith. The condition of the right lateral structures being so indefinite, the cul-de-sac was opened. On the right side a few light adhesions could be made out, binding the ovary to the broad ligament. These were separated, and a large cyst of the ovary was ruptured. The cul-de-sac was then irrigated, and a small iodoform tape left in place. She made an uneventful convalescence. By carrying out this procedure an abdominal operation was avoided.

Case V: Pregnancy, which suggested an ectopic pregnancy.

Five years previously this woman had undergone an operation for the separation of adhesions, due to a bilateral perisalpingo-oöphoritis, with the removal of the appendix and a ventral suspension and perineorrhaphy.

Present Illness: In January, 1912, her present trouble started with a discharge of blood from the uterus, following a fall on the ice. The bleeding lasted three weeks, and then she went to bed. She has remained in bed three weeks, and during that time, she has flowed only once. She has had a constant dull pain in the abdomen and back with occasional sharp pains which are worse when sitting up or upon defecation.

Examination and operation under anesthesia: Outlet relaxed; cervix in the axis of the vagina; uterus sagging in the pelvis, apparently freely movable. To the right of the median line, there is a soft, fluctuant mass about the size of a closed fist. This cannot be satisfactorily differentiated from the uterus, although it lies much to the right of the median line, and seems to be entirely separate from the uterus. Deep down in the pelvis on this side, a body resembling an ovary can be palpated. The left ovary is small and *apparently freely movable*.

The vaginal outlet was markedly cyanotic. An incision into the cul-de-sac was made. The uterus was found very soft and fluctuant, and extended upwards from the elongated cervix. The right tube and ovary were small and freely moveable. *The left ovary was small and slightly adherent*. The adhesions about the left ovary were separated. Aside from some bearing-down pains on the sixth day, she made an uninterrupted recovery.

This was one of those cases of early pregnancy in which the diagnosis is difficult to be sure of, especially with the somewhat suggestive symptoms of an ectopic pregnancy, and a nonconvincing pelvic examination. Such patients as these are not infrequently subjected to an abdominal section, through a mistaken diagnosis.

I do not believe that this method of procedure should be carried out except for good cause and under the strictest aseptic precautions. It is our custom to prepare such patients for an abdominal section, and after the examination under anesthesia, if we are still in doubt as to the condition of the lateral structures, we then make the examination through the incision in the cul-de-sac. Winter and Rüge in their book on *Gynecological Diagnosis* give a report of eighty-one patients upon whom this procedure was carried out, and they have come to the conclusion that this method should be employed in selected cases for determining the condition of the lateral structures. Our experience with this method of examination so far has been limited, but personally I feel, as I have already stated, that it affords a distinct advantage in determining whether an abdominal or other operation is necessary. The need of such a refinement in diagnosis brings up the question whether it is necessary to carry out operative procedures for slightly bound down structures or even to separate the adhesions under these circumstances. Personally, I do not

believe that operative procedures for such conditions should be carried out unless it can be clearly shown that the patient's sufferings are produced by the inflammation present, and that the symptoms cannot be permanently relieved by other and simpler methods. In most of our cases it will be seen that we were able to make out some marked pathological conditions that were not suspected, and thus carry out a very necessary operation, whereas in other cases, we were able to avoid an unnecessary abdominal operation.

### Conclusions

1. If there should still be doubt as to the necessity of an abdominal operation in a given case, a further examination should be made through an incision in the posterior vaginal fornix.

2. By carrying out such an examination many an unnecessary abdominal operation will be avoided, whereas oftentimes a marked inflammatory condition will be made out that would otherwise escape our notice, and the necessary operation thus indicated will save the patient a great deal of suffering.

3. Another distinct advantage is that when adhesions are found after an opening has been made into the cul-de-sac, it is often possible to separate the adherent structures, and save them, and thus do away with the necessity of an abdominal operation altogether.

702 Rose Building.

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**The Insurance Company's View.**—A few years ago a certain life insurance company wanted a medical examiner in a certain locality. My advice and judgment was solicited. I recommended a physician whom I thought possessed every qualification, but, to my chagrin, he was rejected. The company said that while it was not imperative that their examiners should belong to a medical society—all else being equal—they would give a preference in favor of a member over one who was not. The doctor whom I recommended did not belong to a medical society—he does now.—William Scott, M. D., in *Lancet-Clinic*.

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**Collecting Accounts.**—The fact that physicians, as a class, are very careless and negligent in the matter of collecting money due them, has been harped upon repeatedly; but that is not to say that they must always remain so; they *may* improve! The physician who conducts the business side of his profession in a thoroughly businesslike way, receives more real respect from his patients than the one who does not; you have very little respect for any one who is "easy to work"; that is just human nature.—(*Cal. State Jour. of Med.*)

## The Intestinal Absorption of Alcohol

By PAUL J. HANZLIK, M. D.

(From the Pharmacological Laboratory of Western Reserve University, Cleveland.)

Previous studies on the quantitative absorption of drugs from the intestinal tract have led, in each case, to the discovery of an interesting biological phenomenon, i. e., a checking of the absorption produced by the substance itself. The absorption goes on rapidly for a time, but suddenly is arrested and does not complete itself, leaving a considerable proportion, about a third, of the substance unabsorbed. The substances which have been studied, namely phenol, sodium iodid and alcohol, differ chemically, physiologically and pharmacologically. All, however, have exhibited this peculiar inhibition of absorption which occurs promptly and rather early after the drug is injected. An interesting feature of the work has been to solve, in each case, if possible, the cause of this stoppage of absorption. It has been found that the cause is not always the same, although in other respects the course of absorption for the different drugs is very similar. Just how much significance may be attached to this biological phenomenon cannot be premised until a much larger number of different drugs has been studied.

The present investigation deals with ethyl alcohol, i. e., ordinary grain alcohol. It has been pursued on a plan similar to that devised for phenol and sodium iodid previously published<sup>1</sup>. That is, definite quantities of alcohol of a known strength are injected into duplicate ligated loops of intestine of equal length (15 cm), the absorption being allowed to continue for a given length of time under varying conditions. At the end of the given interval of time the loops are excised and the alcohol is recovered from the contents and intestinal wall and its quantity deduced from the specific gravity.

It has been found that when approximately 10 per cent

<sup>1</sup> Sollmann, Torald; Hanzlik, P. J., and Pilcher, J. D.: *Jour. Pharmacol. and Exper. Therap.*, 1910, I, 409.

Hanzlik, P. J.: *Jour. Biol. Chem.*, 1910, VII, 459.

Hanzlik, P. J.: *Jour. Pharmacol. and Exper. Therap.*, 1912, III, 387.

Hanzlik, P. J.: *Jour. Biol. Chem.*, 1912, XI, 61.

Sollmann, Torald, and Hanzlik, P. J.: *Cleveland Med. Jour.*, 1912, XI, 192.

alcohol is introduced into the intestinal tracts of dogs and cats in doses of 10 ccm per kilo, there is an arrest of absorption at the end of half an hour after injection. This is independent of the percentage absorbed, which varies from 33 to 85 per cent, leaving from 15 to 67 per cent of the alcohol unabsorbed. A comparatively slight and almost negligible absorption continues for one or two hours.

The incomplete absorption of alcohol is not due to reexcretion, since the intestinal canal excretes a much smaller quantity (0 to 0.14 gm) than that which remains in the intestine when absorption is arrested. There must, therefore, be an actual inhibition of absorption. This does not seem to be due to a strictly local action, for preliminary treatment of an intestinal loop with alcohol does not inhibit the absorption of subsequent portions of alcohol from the same loop. On the other hand, the absorption from the intestine is diminished 5 to 20 per cent by intravenous injections of 10 per cent alcohol. The effect, therefore, seems to be systemic. It is not, however, due to changes in the systemic blood pressure.

In addition the following facts were established. In each case I shall compare these briefly with the results obtained in previous studies on sodium iodid and phenol. 1, The absorption of alcohol differs for different individuals of the same species, but the average was practically the same in the different animals studied, i. e., cats and dogs. The same was true for phenol and sodium iodid. 2, The extent of intestinal surface does not affect the absorption of alcohol. Phenol and iodid behaved in a similar manner. 3, The absorption of alcohol is about the same for all divisions of the small intestines, although slightly higher in the stomach and greatest in the colon. With phenol, the absorption was quantitatively identical for the stomach and intestine. In the case of the iodid the absorption was about a third less in the stomach and colon than in the small intestine. 4, The absorption is scarcely influenced by the concentration of the alcohol, although a 10 per cent solution of alcohol is absorbed slightly better than 5 and 50 per cent solutions. Undiluted phenol was found to be absorbed a trifle better than a 5 per cent solution. With the sodium iodid, the 10 per cent solution was absorbed best, while weaker solutions, i. e., 1, 2 and 5 per cent solutions somewhat less. 5, Necrotic agents, such as formaldehyde and concentrated phenol; and calcium chlorid which

diminishes the permeability of cells; and sodium fluorid which acts as a protoplasmic poison, all diminish the absorption of alcohol. Agents which cause visible anemia tend to lessen the absorption, while those which cause visible hyperemia tend to increase it. Practically the same results were obtained with phenol and sodium iodid. 6, After death the absorption of alcohol from the stomach and intestinal loops is comparatively good, averaging about 19.6 per cent. For phenol the postmortem absorption averaged about 16 per cent; for sodium iodid about 35 per cent.

The curious inhibition of absorption exhibited by alcohol was also observed with phenol and sodium iodid. With phenol the arrest of absorption was found to be due to an interference with the local circulation produced by the substance systematically or by local contact. In the case of the iodid, the interference in absorption appears at the end of 10 minutes after injection and was found to be due to the action of the haloid on the cells of the mucosa by local contact only. The data for alcohol, so far, indicate that the mechanism of its inhibition resembles that of phenol.

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**The Nature of Anaphylaxis.**—Anaphylaxis is due to the reaction between specific antibodies present in the cells and the introduced antigen.—In passive sensitization, the body cells absorb the introduced antibodies from the blood, and the animal is thus made anaphylactic.—The function of immune bodies present in the serum is to neutralize the introduced antigen, and so to protect the body cells.—The anaphylactic animal regularly contains in his circulation an insufficient quantity of antibodies to protect his body cells.—The immunized animal is potentially anaphylactic. His body cells possess anchored immune bodies, but are protected by those in circulation.—Exactly the same antibodies are present in anaphylaxis as in immunity. In the former they predominate in the cells—in the latter, in the serum.—Richard Weil in *Jour. Med. Research*.

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**Advantages of Pyelotomy in Renal Calculus.**—1, Pyelotomy is the simplest and least serious method for the removal of calculi lodged at the junction of the ureter and renal pelvis, or for small or moderately large calculi, either free in the ampullary type of pelvis or in a primary calix of a bifid or trifid type of pelvis. Pyelotomy is also rapidly becoming the method of choice for small calculi lodged in the calices of the ampullary type of pelvis.—2, It is the best method for calculi in one or both pelves of a horseshoe kidney, as well as in bilateral cases, especially in those complicated by anuria.—3, Hemorrhage is far less likely to occur either during or after pyelotomy than in nephrotomy.—4, Bimanual palpation of the pelvis and parenchyma lessens the chance of overlooking a calculus.—5, Pyelotomy can be done much more rapidly, and the period of convalescence is much shorter than in nephrotomy. It is seldom more than ten to fourteen days, in my experience.—Eisendrath in *J. A. M. A.*



# The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and  
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

THE OFFICIAL ORGAN OF THE ACADEMY OF MEDICINE OF CLEVELAND

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BUSINESS MANAGER—MISS RUTH STONE  
2318 PROSPECT AVENUE

Entered March 7, 1902, as Second-Class Matter, Post-Office at Cleveland, Ohio, under  
Act of Congress of March 3, 1879.

Organized January 20, 1902

Capital Stock \$6,000

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## EDITORIAL

### Join the Academy!

To him who is a member of his county society, many of the advantages which his membership gives are quite obvious—but even he does not always realize how great a factor he, through his organization, may be in the solution of professional problems. To the physician who, though eligible to membership, has refrained from affiliating himself with his local organization, some of the advantages of medical society membership may be pointed out.

The medical society has been termed the best of postgraduate schools. Too little business at the beginning of a man's career is apt to make him lose heart and interest. Too much of the

routine of practice is apt to interfere with reading; left to himself the too busy practitioner may fail to keep in touch with the progress of his profession. The regular society meeting, which can be arranged for and looked forward to, helps to prevent the formation of mental cobwebs and to emphasize whatever progress is being made. The postgraduate value of the medical society of a large city is well illustrated by the Academy of Medicine of Cleveland, which, with its own and its section meetings, offers a choice of much that must be helpful. In paying homage to the widely known man from out of town it is well not to overlook what is offered week after week by those whose work we are prone to undervalue because they are our friends.

In emphasizing the scientific value of the society meetings, the lighter social side must not be lost side of. The meeting together in friendly spirit, even in friendly individual rivalry, does much to make good qualities which are not so apparent outweigh what may be considered more apparent faults; it helps in the building of mutual esteem. Because of this function, Osler has called the society "professional cement" and says further:

The meetings in a friendly social way lead to a free and open discussion of differences in a spirit that refuses to recognize differences of opinion on the nonessentials of life as a cause of personal animosity or illfeeling. An attitude of mind habitually friendly, more particularly to the young man, even though you feel him to be the David to whom your kingdom may fall, a little of the old-fashioned courtesy which makes a man shrink from wounding the feelings of a brother practitioner—in honor preferring one another; with such a spirit abroad in the society and among its older men; there is no room for envy, hatred, malice or any uncharitableness. Most of the quarrels of doctors are about nonessentials, miserable trifles and annoyances, the pin pricks of practice, which would sometimes try the patience of Job, but the good-fellowship and friendly intercourse of the medical society should reduce these to a minimum.

One of the most important aims of the medical society should be the development of a proper attitude, upon the part of a united profession, toward public problems. The physician, as a rule, is not a politician and yet his profession must play an important part in the working out of many of the public questions of the day. Contract practice, workmen's compensation, the general trend of legislation present problems which an occasional individual may meet successfully, but which will strangle the great majority unless the profession can determine within its own ranks what is best for it. The medical profession cannot obtain fair and just consideration at the hands of the rest of the world unless it itself knows what is fair and just. This can be determined, not by a few physicians, not by half of them in any given locality, but only by an almost unanimous organization

which acts and works fearlessly with the aim of determining the greatest good of the greatest number. Those who are not members of their local society may not be in entire accord with the society's attitude toward these important problems. They can, however, do much more good, to their profession and to themselves, inside than outside the society, since membership and a fulfilling of its obligations would help in determining the policy which ultimately would represent the best thought of the entire profession.

We might go on to the extent of yet several more pages, naming advantages of medical society membership which are generally applicable. But charity begins at home, and to those who are not members of the Academy of Medicine of Cleveland we would point out some of the additional reasons for becoming members. There are in Cleveland approximately seven hundred physicians who are eligible to membership in the Academy. Of these only 412 were certified at the beginning of the present month as having paid their dues for the current year. The number should be much larger. As a matter of fact, in order that the local profession may determine its attitude toward some of the questions mentioned above, the Academy should number among its members every individual eligible physician. The latter would then have a voice not only in determining local policies, but also, since he automatically becomes a member of the state association, in shaping broader ones. Furthermore, and this is a point which even members lose sight of, it is the local society membership which transacts the business of the American Medical Association through the delegates named by the state association. While the proportion of those who subscribe to the maintenance of the national organization should be much greater than it is, it is important to bear in mind that the local society member who does not so subscribe has just as much voice as he who does.

The annual dues of the Academy of Medicine of Cleveland are five dollars. This amount includes membership in the state association and the receipt of the Journal of the state association and of THE CLEVELAND MEDICAL JOURNAL. Editorial modesty prohibits our attempting to weigh the value of the latter advantage—if advantage it is.

The postgraduate help offered by the regular meetings of the Academy and its sections we have already mentioned. We would only emphasize here the fact that a meeting practically

every Friday gives to every member the opportunity of selecting just that which he feels he most needs.

The activities of the societies of other states and counties point out lines of endeavor which the Academy of Medicine might well consider. In a number of states the state association maintains its own medical defense fund, which gives service at a smaller cost than that of the companies organized for profit. Whether the Ohio State Medical Association should establish such a fund can be determined only through the county societies. Many county societies have devised plans which are helpful in the collection of accounts; this also is something that the Academy might consider. The Academy of Medicine of Cleveland is fortunate in having, through arrangement with the Cleveland Medical Library Association, a most excellent meeting place—which relieves it somewhat of the permanent home problem which confronts many medical societies. The fact that so many physicians have offices in a relatively small number of downtown office buildings has been taken advantage of by the Los Angeles County Medical Society in a way to excite the utmost admiration. Through the organization of a Medical Building Corporation it is proposed to erect an office building at a cost of one and one-half million dollars. This building is to contain the quarters of the county society, which plans to become the owner of all or the greater part of the building in about twenty years. The San Francisco County Medical Society also has been working along similar lines and hopes to become the possessor of a two million dollar building in a period of about fifteen years. Such examples of what is possible through organization ought to bring every eligible member of the local profession into the Academy of Medicine.

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### The Council

We refer not to the small council which we are not to have under the new municipal charter nor to the Council of the Academy of Medicine, but to the Council of Pharmacy and Chemistry of the American Medical Association. The receipt of the 1913 edition of *New and Nonofficial Remedies*\* emphasizes again the tremendously important and really valuable work which this body is doing for the medical profession of America. The factors which aid in the attempted exploitation of physicians by the

\**New and Nonofficial Remedies*, 1913. Press of the American Medical Association, 535 North Dearborn Street, Chicago. Sent postpaid at the following prices: paper, 25 cents; cloth, 50 cents.

manufacturers of proprietary remedies have been frequently discussed. It is only through some such central body as the Council of Pharmacy and Chemistry that doctors and patients can be protected, and the organization of the Council is one of the biggest things ever undertaken by the American Medical Association. The personnel of the Council is sufficient answer to the objections made against the work of the Council by those whose products have not received this body's approval.

It is important for physicians to remember that acceptance of an article by the Council is not a recommendation, but only evidences that the article complies with the rules of the Council, a copy of which is given at the beginning of the book. Rule 8 has been amended so that it now reads :

**Objectionable Names.**—If the trade name of an article is not sufficiently descriptive of its chemical composition or pharmaceutical character, or is, for any other reason, unsatisfactory or objectionable, the Council reserves the right to include with the trade name a descriptive title in the book. Articles bearing objectionably suggestive names will be refused consideration. Names which suggest diseases, pathologic conditions or therapeutic indications will not be admitted. In the case of pharmaceutical preparations or mixtures the trade name must be so framed as to indicate the most potent ingredients.

The following has been adopted as rule 10 :

**Unscientific and Useless Articles.**—No article will be admitted which, because of its unscientific composition, is useless or inimical to the best interests of the public or of the medical profession.

These changes in the rules, together with the provision that "articles admitted to N. N. R. will be retained for a period of three years, provided that during that period they do not infringe the rules and regulations which were in force at the time of their acceptance," have led to the omission from the 1913 edition of *New and Nonofficial Remedies* of the following substances contained in the previous edition: Parotid Gland; Dessicated Parotid Gland (Armour & Co.); Parotid Tablets (Armour & Co.); Spleen; Dessicated Spleen (Armour & Co.); Spleen Tablets (Armour & Co.); Testicle; Orchic Substance (Armour & Co.); Orchic Substance Tablets (Armour & Co.); Ferric Arsenite, Soluble; Ampules Iron Arsenite Solution (Sharp & Dohme); Tabloid Coffee Mint (Burroughs Wellcome & Co.); Enzymol (Fairchild Bros. & Foster); Elixer Duozyme (Louisville Pharmacal Works); Eusimine (L. A. Seltzer).

*New and Nonofficial Remedies*, 1913, should be in the hands of every physician who wishes to know what he is about, and who desires to save his patients needless expense.

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The Academy of Medicine needs you; you need the Academy of Medicine.

### The Cleveland Medical Library Association

The Cleveland Medical Library Association with its twenty thousand volumes, its property free from debt, and a small endowment fund to which has recently been added the generous gift of \$10,000 from the late Dr. Marcus Rosenwasser, is an institution of which the medical profession of Cleveland may well be proud. Its present development represents the result of the devoted efforts of a small group of men in the profession who started twenty years ago with a few medical books which were kept in Case Library. A gradual but steady growth, made possible by money raised among physicians and given by lay friends from time to time, has resulted in the present plant.

It is unfortunate that the membership in the Library Association is not more representative, and it is with the view or urging more physicians to avail themselves of the very obvious advantages of membership that this is written. The most natural motive in acquiring membership in the Library Association is the one of personal advantage. At the disposal of members are all the latest textbooks and monographs on general and special subjects; many of them donated by THE CLEVELAND MEDICAL JOURNAL after the books have passed through the hands of their reviewers. It often happens that a physician may be interested in only one section or chapter of a new textbook, and to have this at his command would require purchasing the entire book—this with the practical surety of finding the book much out of date within a few years.

The amount of membership dues in the Library Association, if spent for new books, would not place at the physician's disposal one tenth the material he can make use of at the Library. The latest views on all topics in medicine are generally to be found in journals, and of these, the Library member has over 200 at his disposal, both American and foreign. Members doing research or writing articles on various topics, have at their command the services of the Librarian in looking up references and preparing bibliographies.

Wholly aside from the personal advantages of membership, however, a second motive for acquiring membership, is the duty of every physician to do his small share in supporting an institution which stands for the best in medical progress, and which reflects the character of the profession of the city.

### Medical Ethics

The standard of conduct—the code of ethics—which the medical profession has evolved for itself and which still, after many years, contains the essentials laid down by Hippocrates, are of such a nature as frequently to subject the profession to ridicule. This is because the layman cannot understand the attitude of the properly trained physician and his failure in this regard is due to measuring everything in the terms of commercial success. Whenever the individual physician measures his success by the dollar sign, then he would better transfer his endeavors to some business or trade. If ever the S with the two vertical strokes shall become the jolly roger of the medical profession as a whole, then the layman who so worships at the shrine of the dollar would better die as peacefully as possible without medical attention. No person who looks upon the practice of medicine merely as a means of gaining a livelihood or as an end to the collection of government scrip, to the exclusion of all the other and finer sentiments of the profession, should be permitted to enter upon the study of medicine. It is one of the most important duties of the medical society to maintain standards of conduct and to sustain the brother perplexed by doubt, confused and troubled when he is tempted by what appears to be “easy money.” These ideas have been expressed so much more forcefully in an editorial, entitled “Enforcing Medical Ethics,” in the *Texas State Journal of Medicine*, that we let it follow *verbatim*:

It is history that any class permitted to follow unimpeded any course of action, whether right or wrong, eventually comes to consider that course as their vested right. Doubtless the Chinese pirates consider piracy a proper pursuit, and we know that many illicit distillers are firm in the conviction that the Government has no right to interfere with them in what they consider a legitimate way of making their living out of the products of the soil. When might made right and the population of the earth was so arranged that there was room for all without the present day lapping of individual rights, such a contention might have been permissible. Under present day conditions, however, society finds it necessary to rule otherwise, else we could not conduct our affairs in a proper and orderly manner. There are numerous pursuits wrong in principle and disastrous in practice that have grown up without let or hindrance because they had their origin and early growth in obscurity, so far as ultimate results are concerned. It is now not an easy matter to bring about reform in such instances because of this idea of vested rights; and in a “free country” that means something—just like “progressive legislation” or “trusts.”

The medical profession is at the present time facing a situation to which this thought is applicable. Commercialism and greed have crept in and are threatening the existence as such of the noblest profession of them all. Too frequently we hear the expression, “I am for the money that is in it.” That is not professional; it is commercial. There should

be money in the professions, of course, for the reason that there is otherwise no provision for support of professional men and women; but the money is, after all, a secondary consideration. Were it not so we would not see the entire medical profession uniting in an effort to better health conditions and enlighten the public on all health questions. Competition, contract practice, splitting fees and advertising, are some of the results of a degree of commercialism tolerated by the medical profession. An effort is being made here and there to suppress them, and we not infrequently hear the cry of "intolerance" from those who think their vested rights are being assailed. The commercial man masquerading in the profession, the medical faker and the newspaper man who profits from both, are heard from immediately an effort is made to put a stop to newspaper advertising. The "specialist" who is shy on special ability and the general practitioner who is shy in both professional ability and nerve to make legitimate charges unite in defending the practice of fee-splitting. They are all wrong; such practices have no right in the medical profession and should be eliminated, protest or no protest. It is to be hoped that our county societies will take the subject of medical ethics in hand, and with gentle firmness, see to it that these abuses are corrected as speedily as is consistent with justice.

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The Academy of Medicine and its sections hold meetings practically every week from September to June. There's something worth while doing all the time.

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### Nothing Doing

In its Propaganda Department, the *Journal of the American Medical Association* for March 22 called attention to the misleading claims of the Jireh Diabetic Food Company. Under date of March 15 we received the following letter from one George M. Norton, M. D., of Savannah, Georgia:

Enclosed please find herewith a short (authors) abstract of a paper which has just appeared in the March issue of the *Medical Summary* of Philadelphia. This paper has already brought a volume of inquiries, and it occurs to me that an abstract appearing in THE CLEVELAND MEDICAL JOURNAL would be appreciated by your many thousand readers, and the abstract is therefore respectfully submitted.

I hope you will extend to me the courtesy of giving space to this extract in an early issue of your most excellent Journal. Thanking you in advance for the courtesy, and hoping to have an opportunity to return the favor, I beg to remain.

The "author's abstract" consists of three closely typewritten pages and is entitled "The Value of Starch-Treated Foods in the Dieto-Therapy of Diabetes Mellitus." Lest we give the "abstract" more space than it deserves, we will merely state that two of its three pages are virtually an advertisement of "the physiologic and therapeutic value of Jireh Products." THE CLEVELAND MEDICAL JOURNAL is not in the habit of running advertisements as reading matter, it is not in the habit of giving away valuable advertising space, and it tries not to advertise anything



which has not received the sanction of the Council on Pharmacy and Chemistry of the American Medical Association.

We are not so much indignant that anyone should try to obtain advertising for nothing, as we are chagrined that anyone should try anything like Doctor Norton's "author's abstract" on us. After all that the local profession as a whole and many of its members as individuals have done and sacrificed in the way of time and money to make THE CLEVELAND MEDICAL JOURNAL what it is, it fills the editorial bosom (or should we, speaking in the editorial plural, say bosoms?) with much sadness to think that we are expected to "fall for" the "author's abstract" or "original article" type of advertising dodge.

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You can do more good, to yourself and to your profession, by working inside the Academy of Medicine than you can by knocking outside it.

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## Department of Therapeutics

Conducted by J. B. McGEE, M. D.

**Sodium Nitrite:** In the February number of the *Monthly Cyclopaedia*, William Henry Porter considers the use of sodium nitrite in arterial hypertension. In attempting to elucidate the therapeutic value of sodium nitrite or any other drug, we must know the etiological factors that we are trying to remove. Some remedies act directly, others indirectly. Sodium nitrite should be classed with these that act indirectly, for it in no sense tends to remove directly the causes of hypertension in the vascular system. It in no measure directly arrests the progressive hardening and inelasticity of the vascular walls which is one of the inevitable results of advancing years. It is in the pure hypertensions before profound pathological changes have taken place in the vascular walls, that sodium nitrite is most valuable. We now know exactly what can be accomplished with sodium nitrite. The exact *modus operandi* by which it produces a dilatation of the overtense vascular system is not quite so clear. Most writers simply state that it acts like the rest of the nitrites. This, however, gives very little information as to how it acts. The slow decomposition of sodium nitrite, as compared with amyl nitrite and nitroglycerin, makes it far more valuable when a continuous effect is desired. Sodium nitrite is of exceedingly great value before the vascular system has become too profoundly involved to be readily influenced, because of its power to expand the unduly contracted arterioles. Its failure to accomplish the result desired is usually due to its employment in unsuitable cases. The dose is from one grain up, given at frequent intervals until the arteries soften. If sodium nitrite is used in the right cases, given continuously and in sufficiently large doses, the effects are all that can be desired. The distressing symp-

tom, dyspnea, which is nature's method of indicating tissue starvation, is completely relieved in a manner which at times is almost magical. By the drug's action we have relieved a most distressing symptom, we have, in so far as the vascular system is concerned, augmented oxidation and assimilation. Now if at the same time, by other measures, the etiological factors are removed, the diet and digestion rendered perfect, the metabolic processes of the body can be and often are changed from an absolutely pathological state to one that is perfectly normal. From a purely histological standpoint we may not effect an absolute cure, but from the physiological we can. If sodium nitrite is used when the contraction of the arterial system occurs in association with an enfeebled cardiac muscle, in which case the apparent hypertension is nature's method of augmenting the volume of blood supplied to the arterial capillaries, its use can only do harm. The same is true of the condition of engorgement of the general venous system, in which, by overcontraction or hypertension of the arterial system, nature is trying to lift a greater bulk of blood back from the venous to the arterial arcade than she otherwise could do, so that the blood may again be of nutritive value. Porter's opinion, based upon years of experience with the drug, is that it is a very valuable remedy. It is the misuse of sodium nitrite that has caused so many to doubt its efficacy. If it is used when and where it can assist nature, we have no more reliable and certain remedy in our whole materia medica.

**Urticaria:** Arthur W. Swann, in the *American Journal of the Medical Sciences* for March, reports upon the use of epinephrin in urticaria. In six cases thus treated by the subcutaneous administration of epinephrin, the injections were followed by a rapid disappearance of the erythema and wheals. The preparation employed was the 1:1000 solution of adrenalin chlorid. In each case a dose corresponding to about eight minims for an adult of 140 pounds was given hypodermically and the dose was repeated in ten minutes. Two doses sufficed in every instance to cause complete fading of the rash. An improvement was usually evident eight minutes after the initial dose, and was most marked between ten and twenty minutes, during which time, especially in the severe cases, the rapidity with which the eruption subsided was very striking. After twenty minutes there usually remained some erythematous blotches or small pale wheals, which continued to fade until the skin looked entirely normal. All itching ceased in from five to twenty minutes after the first dose. In one case the eruption did not return until three days later, when epinephrin was again given. In another case it recurred in seven hours. In the three most severe cases, all of which were serum rashes, the wheals began to reappear in from one to two and a half hours after the initial dose of epinephrin, and increased steadily for from one to three hours more, when the eruption was again at its height. There is no doubt that if the exciting cause of the urticaria is still sufficiently active, the wheals will recur in an hour or two unless the treatment is continued. It will be interesting to see whether or not the condition can be relieved for longer periods or even permanently by repeated and properly regulated doses. From the results obtained in these six cases of urticaria it seems probable that in such cases the vessels in the wheals are in a state of optimal tonus for the action of the epinephrin, and that on them the drug has an unusual and selective effect. The effect produced in these cases of urticaria suggests that epinephrin might be used to advantage in certain more serious yet similar conditions. One such condition is angioneurotic edema in its various forms. In cases of edema of the epiglottis or larynx due to disturbance of this type, epinephrin given intravenously, if its action were similar to what it has been in the cases of urticaria, might well be the means of saving life, when the local application of the drug and other measures had failed. Another such condition is anaphylaxis, with severe bronchial spasm and edema.

**Chemotherapy:** *The Medical Record* for March 8 comments on chemotherapy and serotherapy, that we not infrequently hear these two methods of treatment contrasted, as if both could not be justifiable, so that one must be destined to drive out the other. We naturally suspect a commercial rivalry beneath arguments of this character. Even if the chemotherapy of a certain disease appears to be illfounded, that should be no argument against the method as a whole, nor are we even warranted in the belief that the future cannot supply what the present moment does not. If the serum therapy of some affection like scarlatina does not inspire our confidence, why should we reject it outright in favor of some other plan of treatment, provided the two are not strictly incompatible. The answer would seem to be selfevident, but the history of therapeutics shows that the apparent success of one plan is not infrequently the death knell of another. It would be better in every way to preserve a semblance of the old treatment as synergistic to the new, and the profession would escape thereby the accusation of fickleness so often made against it. At a recent meeting of the local medical society of Frankfort, Boenke brought up this question in connection with experimental pneumonia. Serotherapy of pneumococcus infection having been pronounced practically valueless in man and of limited value in the experimental disease, while contrariwise the new chemotherapeutic remedy, ethylhydrocuprein, fails in one case out of three in animals, the author combined both plans in his treatment of induced pneumococcic sepsis. As a result he now saves nearly all his experimental animals and shows incidentally that there are two essential components in the disease.

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**Normal Heart Signs:** *The New York Medical Journal* for March 1 comments on normal heart signs and their unnecessary treatment. Clinicians who have had any considerable experience in the treatment of heart disease, sooner or later ascertain that in young people especially, certain abnormal signs resist all measures and that such signs are quite compatible with a normal condition of the body. In a recent paper James Mackenzie reaches the conclusion, after a special study of the subject in a large number of young people, and after taking "tens of thousands" of tracings, that many such people have been and are being subjected to various forms of active treatment for phenomena deemed morbid, which experience has taught him to be signs neither of disease nor of impairment. Candidates for insurance and for the government service are rejected if they show any intermission of the pulse at rare intervals, even though such irregularity is of little or no importance. A mitral murmur, systolic in time, is dubbed "mitral disease with good compensation," if there are no signs of heart failure, although certain functional murmurs, systolic in time, with their maximum intensity at the apex, base or midsternum, not only are consistent with perfect health, but never lead to the slightest sign of heart failure. Briefly, functional murmurs and irregularities may in the young, according to Mackenzie, be manifestations of a perfectly healthy heart and are of significance only when associated with impairment of the heart muscle. As to the evidence by which impairment of the heart muscle may be recognized, Mackenzie attaches importance to a change in the size of the heart due either to dilatation or hypertrophy of its walls. The view so widely held that functional systolic murmurs indicate regurgitation and in consequence there is danger of embarrassing the heart and leading to heart failure, is regarded by him as having no existence in fact. On the whole, reserve in diagnosis, particularly if the interests of the patient are harmed by a pessimistic estimate of his condition, is in order. It might be added that the whole field of physical diagnosis concerning cardiac disorders seems to require a searching analysis with the view of eliminating the erroneous conceptions it may contain.

**Poliomyelitis:** Geo. E. Malsbury, in the *International Clinics (Volume I, 23 Series)*, summarizes the treatment of poliomyelitis. During the acute stage the child should be kept quiet and comfortable, abed in a separate room. Isolation would be justified on therapeutic grounds alone. The patient tends to assume the posture in bed that is most comfortable. This should not be interfered with. Frequently the body is more or less in the position of opisthotonos assumed instinctively, since the pain is minimized. The use of the plaster cast in appropriate cases has been suggested, but he has not seen a case in which this seemed to be needed. For the relief of pain, to control nervousness and contribute to the comfort of the patient, hydrotherapy and the various sedatives are useful, codein or morphia very rarely necessary. The initial catharsis, and later the rational use of laxatives are important. The routine use of hexamethylenamine is in vogue. Care should be taken to avoid irritation of the kidneys with this drug. The upper respiratory tract, especially the nasopharynx, should be kept clean, and for this purpose a mild mentholated peroxide of hydrogen is useful. Massage, the use of electricity and nerve tonics should be avoided during the acute stage. With the subsidence of the acute symptoms, the disappearance of fever and tenderness, the treatment is directed especially toward the paralysis and deformities. During this period, chief reliance is placed upon the use of electricity, massage and passive and active gymnastics—so-called muscle training. To these we might add the use of rational suggestion in securing the cooperation of the patient, which is often of value especially when dealing with very young patients, such as form a very large proportion of those affected. In no case should treatment be discontinued so long as there is any improvement, though usually whatever paralysis remains at the end of a year will be permanent. The so-called nerve tonics are of value and any anemia should be corrected. He emphasizes the importance of persistence and patience in treatment. Surely with our present knowledge it is akin to a crime to rob a patient of hope.

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**Sparteïn:** In the March number of *Merck's Archives*, W. C. Woolverton writes concerning sparteïn, that it is a true and reliable heart tonic and stimulant, an excellent nonirritating diuretic admirably replacing digitalis, and many times succeeding where the latter fails. It is free from the objectionable blood-pressure raising properties of digitalis, so permitting its use in aged patients with arteriosclerosis and atheroma, where digitalis is barred. Nor does sparteïn cause gastrointestinal irritation, a symptom which often makes the discontinuance of digitalis imperative; on the other hand, sparteïn is a bitter stomachic and improves the appetite. Lanphear states that in the treatment of postoperative anuria, sparteïn sulphate in doses of one to two grains every three or four hours has been found most useful; in conjunction with it a liter of physiologic saline solution should be given by hypodermoclysis, and repeated in three or four hours. MacNider states that following surgical procedures, where the amount of urine is greatly reduced, or where anuria has developed as a result of low general arterial tension, the amount of urine may be increased and the anuria relieved by the action of sparteïn on the general blood-pressure, and indirectly on the local kidney pressure, raising the latter and rendering the kidney functionally more active. Woolverton emphasizes certain points: 1, Sparteïn when administered in sufficient dosage is our most efficient reliable heart stimulant. 2, It is at least as efficient as digitalis, having none of the evil by-effects of the latter, as cumulative action and gastrointestinal irritation. Moreover, it can be used in those cases where digitalis is contraindicated because of the excessive intraarterial tension occasioned by the latter. In many cases where digitalis has failed to provoke a favorable response, sparteïn has achieved the desired result. 3,

Sparteïn is a reliable, quickly acting, nonirritating diuretic, increasing the secretion of both urinary solids and of water. It is the remedy *par excellence* in oliguria and anuria, being valuable both as a prophylactic and curative agent after operative procedures. 4, Unlike many potent remedies, the cost of sparteïn sulphate is not prohibitive, its cost being very low. 5, If one is confidently to expect results from the administration of sparteïn sulphate, it must be given in adult dosage of one or two grains, repeated at intervals of from two to six hours, as indicated. In urgent cases, it is best to give two grains hypodermically and repeat in two hours, then at intervals of three, four or six hours, as resulting symptoms may dictate.

**Opium:** The March number of the *Medical Council* comments on discarding opium unwisely. We all know the dangers and limitations of opium and its derivatives, and there is a healthy tendency to use these agents with proper caution. But despite all the damage that they are possible of doing, the fact remains that therapeutic doses of these drugs seldom abbreviate life or produce organic changes in the tissues of a nature not to be largely overcome by time. The same cannot be said of chloral hydrate and the class of drugs to which it belongs. This matter has been carefully watched in practice. Undoubtedly chloral hydrate itself is the most dangerous of the group, and the danger, so far as it has been possible to determine, tapers down about as follows: butyl chloral hydrate, paraldehyde, dormiol, somnal, methylal, hedonal, isopral, chloralamide and hypnose. It would be a long story to tell of the various degenerative and psychical manifestations incident to prolonged use of the derivatives and analogues of chloral, but it would be a story full of warning to the general practitioner. Far better is it to use an opium preparation or alkaloid in an intelligent, conservative manner, than the more dangerous drugs in this list. We know just what opium is and what it does; these others act very differently with different people and under different conditions. We all know that chloral is a dangerous drug, but all do not remember the danger of chloral alcoholate separating from mixtures of chloral hydrate, potassium bromid and alcohol and the patient getting a dangerous dose. Also, adding cannabis indica and other resinous substances to chloral and bromid mixtures is apt to result in precipitation. The opinion is distinctly expressed that the commonly used mixtures of chloral and bromids are prescribed infinitely more than they should be. There is little occasion to prescribe these seductive and dangerous mixtures in quantities exceeding a fluidounce; that quantity will meet the real indications. Look out for chloral in any form, as it is more dangerous than opium and leads to a dangerous habit.

Since publication of *New and Nonofficial Remedies*, 1913, and in ad-

### New and Nonofficial Remedies

dition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Meningococcus Vaccine contains in each ccm about 1,000 million killed meningococci. G. H. Sherman, Detroit, Mich. (*Jour. A. M. A.*, March 1, 1913, p. 665).

Staphylococcus Pyogenes Aureus Vaccine is marketed in two strengths: 1, Containing in each ccm about 300 million *Staphylococcus pyogenes aureus*. 2, Containing in each ccm about 600 million *Staphylococcus pyogenes aureus*. G. H. Sherman, Detroit, Mich. (*Jour. A. M. A.*, March 1, 1913, p. 665).

Staphylococcus Pyogenes Albus and Aureus Vaccine contains in one ccm *Staphylococcus pyogenes albus* and *aureus*, of each 600 million. G. H. Sherman, Detroit, Mich. (*Jour. A. M. A.*, March 1, 1913, p. 665).

*Pneumococcus Vaccine* is marketed in two forms: 1, Each ccm contains about 40 million killed pneumococci. 2, Each ccm contains about 100 million killed pneumococci. G. H. Sherman, Detroit, Mich. (*Jour. A. M. A.*, March 1, 1913, p. 665).

The following have also been accepted by the Council:

Acne Vaccine, Polyvalent, Sophian-Hall-Alexander Biologic Laboratories.

Anti-Meningitis Serum, Sophian-Hall-Alexander Biologic Laboratories.

B. Coli-Communis Vaccine, Polyvalent, Sophian-Hall-Alexander Biologic Laboratories.

Diphtheria Antitoxin, Sophian-Hall-Alexander Biologic Laboratories.

Gonococcus Vaccine, Polyvalent, Sophian-Hall-Alexander Biologic Laboratories.

Meningococcus Vaccine, Polyvalent, Sophian-Hall-Alexander Biologic Laboratories.

Pneumococcus Vaccine, Polyvalent, Sophian-Hall-Alexander Biologic Laboratories.

Pyocyaneus Vaccine, Polyvalent, Sophian-Hall-Alexander Biologic Laboratories.

Staphylo-Acne Vaccine, Polyvalent, Sophian-Hall-Alexander Biologic Laboratories.

Staphylococcus Vaccine, Polyvalent, Sophian-Hall-Alexander Biologic Laboratories.

Streptococcus Vaccine, Polyvalent, Sophian-Hall-Alexander Biologic Laboratories.

Typhoid Vaccine, Polyvalent, Sophian-Hall-Alexander Biologic Laboratories.

Anti-Gonococcic Serum, Sophian-Hall-Alexander Biologic Laboratories.

Anti-Streptococcic Serum, Sophian-Hall-Alexander Biologic Laboratories.

Normal Horse Serum, Sophian-Hall-Alexander Biologic Laboratories.

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## The Academy of Medicine of Cleveland

### ACADEMY MEETING

The ninety-ninth regular meeting of the Academy was held at the Cleveland Medical Library, Friday, March 21, 1913, the President, H. L. Sanford, in the chair.

C. D. Williams presented a bilateral ovarian papilloma from a woman aged 23 years, an early age for this class of tumor. There had been pain in the lower abdomen, especially during urination. Menstruation had been regular, painless and rather profuse. During the past few months the patient had lost about 15 pounds in weight. Diagnoses of pregnancy and ectopic pregnancy had been made. The later diagnosis was ovarian cyst. At operation one ovary was found replaced by a rounded tumor about 7 inches in diameter, the other by a similar tumor about 3 inches in diameter. The tumors were firm, and upon section had the cauliflower appearance characteristic of ovarian papillomata. Papillomatous outgrowths were present upon the external surfaces of the tumors, as well as everywhere upon the visceral and parietal layers of the peritoneum.

D. S. Hanson reported a case of congenital maldevelopment complicating labor. He had been called in by the midwife attending the case because of the difficulties she had encountered. Upon examination the vagina was found filled with coils of intestine. A podalic version was

done and the leg brought down, but delivery was difficult, due, as was discovered later, to the anomaly of the right arm. The latter came out from the region of the right hip and was jointless. The left arm was absent. There was no anterior abdominal wall, the placenta being attached directly to the liver and internal organs of the fetus without a cord.

The regular program was as follows:

The Duties of the Medical Profession under the Workmen's Compensation Law, by A. W. Binkley, Chief Medical Examiner, State Liability Board of Awards, Columbus.

The present compensation act, which has been in force in Ohio for over a year, is the best and most progressive in the world. The physician's part in it has been important, and in the new compulsory law recently passed will be even more important.

Under the older common laws 82 per cent of injuries to workingmen were uncompensatable. The modern tendency is to make the industries, rather than the public or the dependents of the injured, take care of the results of accidents. The older attempts to escape the consequences of accidents, particularly by the help of liability insurance, led to the ambulance chasing lawyer and the contract surgeon. Statistics show that under these older conditions the injured workman suffered the greatest injustice, the physician the next greatest. Under the Ohio law, the ratio of the average paid for medical attendance to the average paid the workman for disability has been one to two and one-half. In Germany this ratio for similar work is one to twenty-seven. Special interests among physicians will no doubt wilfully misconstrue the workings of the act, for selfish reasons, just as the liability companies have been engaged in a campaign of misinterpretation.

The newer law gives to the medical profession every right, and at the same time gives to the board of awards control over the medical attention given and over the payments to be made for such attention. The policy of the board has been to grant such fees as are reasonable, the reasonableness being determined by taking the average minimum fees of county medical society fee bills. The medical profession as a body will receive more than ever before for accident work.

In the working of the law the board of awards has demanded of physicians reasonableness in their fee charges; familiarization upon the part of physicians with the diseases and injuries produced by accidents; the prompt and complete filling out of the necessary reports; and the exercise of the greatest possible care in treatment. Cases should not be treated "too attentively" with the idea of increasing fees. It is important for physicians to remember that the state does not pay the doctor's bill or the amount awarded the injured for disability. These payments are made from the insurance fund, made up by employers. The state pays only for the administration of the act.

R. H. Birge, in opening the discussion, said that the surgical fee bill of the board of awards compared more than favorably with those of liability companies. In his own experience he had never felt any pressure from liability companies, but he had no doubt that abuse of the medical profession by such companies existed; the condition of physicians who have worked for companies of this kind will certainly be improved under the compensation law. He could not accept the speaker's opinion that the act would do away with poor accident surgery, since it is a difficult matter to decide whether the first aid given was good or bad, and he did not see how the board could come to any conclusion as to the quality of the work rendered under the law. One of the best features of the act he considered the elimination of the ambulance chasing lawyer and the claim agent. Physicians ought to become as familiar as possible with the details of the law and aid in every way in its administration. By cooperation upon the part of the medical profession any faults which the act may have can be best corrected.

G. E. Follansbee believed that liability insurance work had been found unsatisfactory for the physician, but was surprised that the average fee per case for such work had been found to be as low as two dollars by the board; as compared with this sum, the average of \$7.50 paid under the compensation law is a decided improvement. It is important that the physician bear in mind that, although the law is administered by the state, he is working for the workingman and not for the state or a rich corporation. In general, he considered the surgical fee bill of the board fair, although he could not agree with certain features. The statement that aftertreatment shall not exceed 50 per cent of the fee for the original treatment appeared unfair, especially in those fractures the aftertreatment of which required as much skill and time as the first treatment. In burn cases, the fee seemed inadequate, when the dressings required and the possibility of skin grafting are considered. One great advantage of working under the law was the provision made for assistance, consultation, X-ray examinations, etc. The form of the reports made to the board by the physician should be so altered that the latter would have a copy for his own files. He took issue with the speaker's generalization that what is fair to one physician is fair to all. He who is competent to do work above the average is entitled to more than the inexperienced surgeon. The board of awards must ultimately come to the conclusion reached by the better employers of labor, who demand good surgeons for their work in preference to poor work cheaply done. In a community like Cleveland the fee of two dollars for the local examiner of the board appeared to be inadequate for obtaining conscientious work.

H. T. Clapp felt that the speaker must be mistaken in his statement that the average fee paid by the liability companies was as low as two dollars. Such an average must include amounts paid under so-called full aid contracts. The latter are pernicious and the fees paid ridiculous, but the companies are not to blame. The surgical fee bill of the board of awards is higher than many liability companies pay, but much lower than the amounts paid by the Travelers and a few other companies.

A. S. Storey asked as to the effect that the attempts of the board to determine the quality of the work done would have upon malpractice suits, and as to the effect of the board's fee bill upon surgeon's fees in general and upon suits for collection of fees.

W. A. Schlesinger said that he had treated some sixty cases which came under the provisions of the compensation act and had found everything satisfactory. There had been no question as to the bills rendered and he felt that he had been well and fairly paid.

N. C. Yarian said that he had done some work under the act, and thus far there had been no cause for complaint. He had overcome the difficulty of obtaining the authority of the workman for payment of fees by sending the reports and bills to the company instead of directly to the board of awards; the company then took the matter up with its employe and obtained his authorization. He agreed that the report forms should be changed so as to make it easy for the physician to retain a copy. There was no question but that a strict adherence to the fee bill in regard to payments for aftertreatment would work injustice; it was to be presumed that the board would take exceptional circumstances into consideration.

J. E. Tuckerman felt that workmen's compensation had come to stay, because it is best for the employer and for the workman. The Ohio law has tried to be just to the physician; the board of awards must **have autocratic powers** in judging the reasonableness of fees. The maximum of \$200 for all medical and hospital services might be low in some cases. Difficulties might arise in determining the reasonableness of fees **for special work**. For the proper working of the law it is important that there be an attitude of cooperation upon the part of the profession, and the board should hold itself open to conferences for determining the reasonableness of fees.



E. O. Houck understood that under the bill the injured workman has the right to select his own physician. He asked whether, if the patient has property, the physician is obliged to accept the board's fee if he considers the latter inadequate.

O. T. Schultz said that the principles underlying workmen's compensation are good and right and he hoped that the statement that the Ohio law is the best yet devised would prove true. The chief objection to such legislation was the constant emphasis placed upon the benefits to accrue to the employer and the workman, with the apparent disregard of the physician's part in the working of compensation laws. This attitude was apparent in the speaker's presentation, which from time to time assumed a threatening tone not conducive to a proper working out of the act. He disagreed with the statement that physicians should have nothing to say as to the fees to be paid; an attitude which had greater regard for the physician would be better for all concerned. However noble the aims of the members of the board of awards might be, it did not make for the cooperation which should exist to have an employe of the board virtually command a medical society that the medical profession must do thus and so, under pain of possible elimination.

W. C. Tuckerman said that under preexisting conditions contract work has been done largely by younger and inexperienced men, and the service has, therefore, not always been of the best. He had found objectionable in the working of the law the provision which makes it necessary for the physician to go before a notary with his reports; signature of the reports by a registered physician should be sufficient. From his own experience he felt that hereafter he would wish to know, in any accident case, whether the work was to be done under the compensation act. The fixed character of the fees might have a tendency to prevent careful consideration of every feature of a given case. The fees should not be based upon the minimum average, but upon the average mean fees of the average physician.

H. B. Ormsby asked in regard to the authority of the physician first called to ask for consultation or for X-ray examinations.

G. E. Follansbee asked in regard to the board's ideas concerning the X-ray examination of fractures and suspected fractures, whether such examinations were to be made both before and after reduction, or only before or only after. He believed that the maximum fee of \$200 allowed by the law might be too low in severe cases requiring prolonged hospital treatment.

H. H. Drysdale asked how the local examiners of the board will be appointed and who will appoint them.

A. W. Leuke expressed the fear that the board's attempt to decide as to what is good and bad surgery might lead to a "blue book," which would give rise to malpractice suits.

W. C. Tuckerman asked in regard to the schedule for payments to the workman for disability.

A. W. Binkley, in closing, said that the schedule for compensation of disability is embodied in the new law itself and is based upon  $66\frac{2}{3}$  per cent of the average weekly wage for 100 weeks. In cases lasting less than a week, the board has ruled that when there has been failure upon the part of the injured to make a claim to the board, the person rendering aid may make a claim for services rendered directly to the board. In the new law provision is made for employers to carry their own risks, if they wish, but under the supervision of the board and under the same provisions for payment for disability. He did not feel that the questions brought up concerning malpractice suits ought to enter into the considerations of the board, since it is not the purpose of the board to protect physicians from malpractice suits. He did not believe that the fee bill adopted could have any effect upon fees in general, except perhaps a good effect. The maximum limit of \$200 was put in the law by the legislature, not by the board of awards; the same maximum is in the

new law. The future must decide whether this sum is adequate; if found to be inadequate it can be changed by the legislature. In making out the fee bill the first attempt was to start with a minimum reasonable amount, with the hope that later experience may increase the amounts; the fee bill adopted does not pretend to be final. He believed that the board could readily gain an idea as to the character of the work done by any given physician by an examination of the reports submitted by him. In regard to the county medical examiners under the act, it is the wish of the board to obtain the services of young, recent graduates who have had hospital training. A fee of two dollars per visit with frequent visits seemed preferable to a fee of five dollars with infrequent visits. In regard to X-ray examinations and consultation, the board feels that the physician must use his best judgment, upon which the board must rely.

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### EXPERIMENTAL MEDICINE SECTION

The sixty-sixth regular meeting of this Section was held at the Cleveland Medical Library, Friday, March 14, 1913, the Chairman, O. T. Schultz, in the chair.

The program was as follows:

1, The Present-Day Views Concerning the Relationship of the Pancreas to Diabetes, by J. J. R. Macleod.

The most recent work bearing on the relationship of the pancreas to diabetes was reviewed in order to show that none of it finally answers the question as to the nature of this relationship. The commonly accepted view that the pancreas ordinarily produces some internal secretion or hormone whose presence in the blood is essential to the combustion of dextrose in the tissues has as yet no more evidence in favor of it than the view that a destruction occurs in the gland itself, of some substance which interferes with the proper utilization of dextrose. It was pointed out that the recent work of Knowlton and Starling, if it can be confirmed, supplies very strong support to the hormone hypothesis. The experiments referred to consisted in measuring the rate at which dextrose disappeared from a mixture of "hirudin" (unclotted) blood, saline solution and dextrose when this was perfused through the heart and lungs of dogs. When normal animals were used the dextrose disappeared at the rate of about four milligrams per gram of heart muscle per hour whereas, when the hearts of depancreated animals were employed, only a little over one milligram disappeared; indeed, in some of the experiments, none at all disappeared. These facts taken alone could equally well be interpreted in terms of either of the hypotheses stated above, but that one which postulates the existence of a hormone could alone be accepted to explain the further fact elicited from the experiments, namely, that the addition of some pancreatic extract to the blood in the diabetic preparations caused the dextrose to disappear at its normal rate. It was pointed out that there are far too few experiments of the last mentioned class to make the conclusions certain, and that more recent workers (Macleod and Smedley), although confirming the observation that dextrose disappears more quickly from a normal than from a diabetic heart, could not cause the latter to reacquire its usual glycolytic powers by adding pancreatic extract.

2, The Rate of Disappearance of Dextrose from the Blood in Normal and Diabetic Dogs, by J. J. R. Macleod and R. G. Pearce.

It was shown, by comparison of the rate at which dextrose disappears from the blood of eviscerated dogs, that there was no difference in glycolytic power between normal and diabetic (depancreated) animals. In such animals the dextrose that is consumed in the tissues is not replaced by the discharge of more dextrose from the liver, so that the blood-sugar rapidly sinks to a very low level. This result certainly stands in contradiction to the view that the pancreatic hormone is necessary for the

utilization of dextrose in the muscles as a whole, although it might of course be possible that the heart muscle is peculiar in its metabolism in that it does need the hormone. It was shown by studies on the D:N ratio that the depancreated dogs were intensely diabetic. The only somewhat disappointing feature of the experiments was the unexplainable variability with which the glycolysis proceeded both in the normal and in the diabetic animals. In one of the diabetic animals also the glycolysis was distinctly below the average for normal dogs.

3, The Possible Relationship between the Presence of Acid Substances in the Blood and Sugar Mobilization, by R. G. Pearce.

The remarkable effect which the presence of small traces of acid have on the rate with which glycogen is converted into dextrose by extracts of liver, or by any other solution containing diastatic enzymes, has suggested the possibility that it may be because of changes in reaction within the liver cells that variable amounts of dextrose are produced by this organ. It was pointed out that such a change in reaction undoubtedly occurs after death, which possibly accounts for the rapid (*post mortem*) glycogenolysis that also occurs. It may also account for the well known mobilization of dextrose which accompanies muscular work, for during this large quantities of acid substances are thrown into the blood. In the present communication were given the results of observations on the amount of sugar discharged from the liver, as determined by analysis of the blood of the vena cava opposite the liver, before and following the injection into the portal vein of varying quantities of lactic acid. It was found that the acid injections did not have any effect on the sugar output. This unexpected result can only be explained by the inability of the injected acid to get into the liver cells, for it is only within these that the enzyme producing the dextrose unfolds its activities.

Torald Sollmann, in discussion, considered the noneffect of pancreatic extract in intact animals to be an argument against the hormone theory of Knowlton and Starling. Hyperglycemia must be due to increased glycogenolysis and not to decreased sugar consumption. In regard to the mobilization of glycogen in muscular exercise, he suggested that it might be regarded as a balanced reaction, in which the withdrawal of sugar from the blood calls for increased sugar formation.

J. J. R. Macleod agreed that pancreatic extract ought to be as efficacious in intact diabetic animals as in the perfused heart, and the fact that it is not offers a serious objection to the hormone theory. The preparation of the extract used in Starling's experiments must also be considered faulty. Most observers have concluded that the mechanism at fault in diabetes is the glycogenolytic function, increased glycogenolysis followed by neoglycogenesis leading to hyperglycemia. An objection to the idea that changes in the sugar concentration of the blood act by stimulating sugar production is the fact that changes in the amount of sugar in the systemic circulation do not seem to be able to have any effect upon the much larger amount of sugar in the portal circulation.

4, An Analysis of Respiratory Excursion of the Thorax in Health and Disease, by C. F. Hoover.

The mechanism of enlargement of the thorax in respiration is quite complicated, the upper and lower portions of the lungs being aerated practically independently. Study of the excursions of the thorax as a whole by means of curves is difficult, but changes in the relations of the various diameters to each other can be readily studied. Until the excursion of the diaphragm was studied with the fluoroscope, the degree and importance of diaphragmatic excursion was overestimated. Estimation of the degree of diaphragmatic excursion from the descent of the edge of the liver leads to error, because the liver rotates transversely about its fixed posterior point. The function of the diaphragm is generally stated to be the widening of the costal angle and the elevation of the costal border; this inference from the experimental findings seems to be in error. Another error of statement is that phrenic paralysis causes epigastric retraction.

The actual function of the diaphragm would appear to be its action as an antagonist to the elevators of the chest. The effect of the scaleni and other muscles is to widen the costal angle, that of the diaphragm to narrow it. Pericarditis with effusion is said to cause paralysis of the diaphragm, but this does not seem to be true. The narrowing of the costal angle and retraction of the epigastrium during inspiration in pericarditis has been interpreted as evidence of diaphragmatic paralysis. It would appear rather that the opposite is true, that the diaphragm is contracting at greater mechanical advantage when depressed by fluid in the pericardium.

Study of the excursion of the costal border may be helpful in differentiating between pleural effusion and consolidation of the lung, since the depression of the diaphragm by pleural effusion places the diaphragm in better mechanical position and makes its action greater than normal, the costal border becoming fixed. On the other hand, in subphrenic abscess, the diaphragm is pushed upward and placed at a disadvantage or is thrown out of function, the excursion of the costal border on the affected side being greater than normal because the elevating effect of the other muscles of the chest is not counteracted by diaphragmatic contraction. In the paroxysms of emphysema, the costal angle narrows during inspiration, indicating that the diaphragm is lower and the thorax larger than when there are no paroxysms. Whenever the diaphragm operates at a mechanical advantage, that is, whenever the line between central tendon and costal insertion approaches a straight line, the costal border is drawn in and the costal angle narrowed. In high position of the diaphragm, the latter can operate at an advantage only when it gets a new costal insertion through adhesions and obliteration of the pleural sinus.

T. W. Todd, in discussion, said that anatomists and physiologists are beginning to appreciate that the function of the diaphragm as a respiratory muscle has been overestimated; its greater function is that of a compressor of the abdomen. In herbivora, with the one exception of the elephant, the diaphragm is practically not at all a respiratory muscle, but acts chiefly in maintaining the tone of the abdomen. In carnivora, the diaphragm begins to take on some respiratory function. In those animals, man and the apes, which use the forelimbs for striking and for the taking of food, the diaphragm is no longer necessary for the tonic effect which it may exert on the abdomen. In man only the lower part of the lung is affected by the contractions of the diaphragm. The elephant is the only one of the herbivora in which the diaphragm is a respiratory muscle, due to its peculiar normal position in the elephant.

C. F. Hoover, in closing, said that he merely wished to emphasize again that observations on the excursion of the lower portions of the thorax are of great help in differential diagnosis, especially of thoracic lesions.

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#### OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The sixty-fifth regular meeting of this Section was held at the Cleveland Medical Library, Friday, March 28, 1913, the Chairman, C. C. Stuart, in the chair.

J. E. Cogan presented a woman of 22 years, with a granulomatous inflammatory condition of both eyes. Four years ago enlarged cervical glands were removed. Later she began to be troubled by the marked production of granulation tissue, with the formation of prominent nodules, involving the palpebral conjunctivae of both eyes. The exuberant tissue was removed last December at the Mayo clinic. It has returned and is again so prominent as partially to cover the corneae. Examinations for tubercle bacilli have been negative. The patient has received tuberculin injections and antisyphilitic treatment for the past six or eight weeks without any apparent effect upon the tissue. The general health is good and sputum examination is negative for tubercle bacilli. An apparently

similar condition is also present in one external auditory canal, leading to almost complete occlusion.

Edward Lauder, in discussing the question of operative removal of the inflammatory tissue and possible resulting cicatrization, mentioned a case of removal of the eye because of injury. A complete symblepharon resulted, preventing the use of an artificial eye. In this case, a cul-de-sac was established by putting in a piece of lead wire. He doubted whether a similar procedure would be helpful in the case presented, because of the extent of the involvement.

W. C. Tuckerman presented a case of keratitis. About a month ago the patient and his wife were exposed to severe cold weather. Each developed a severe iritis, which cleared up in the wife under salicylates. About one week later a keratitis appeared in the husband. The opacity appeared first as three distinct blotches, apparently on the posterior surface of the cornea. Now it is more diffuse. The earlier appearance was more like what is generally considered tuberculous keratitis, rather than **luetica**.

J. E. Cogan, in discussion, mentioned a case which had recently come to the dispensary with a blotchy keratitis, which later became transformed into an opaque, white membrane. The patient has a positive tuberculin reaction and is receiving tuberculin injections.

Edward Lauder presented the X-ray plate of a foreign body of the eye. Fourteen days previously a workman had been struck by a piece of steel, which passed through the lower lid and into the eye. The plate shows that the body went completely through the eye-ball and lodged in the orbital tissues back of the globe. The magnet had no effect upon the body. The eye has quieted down and there is now no reaction, although the patient has no vision in the injured eye.

C. C. Stuart presented a piece of steel which had penetrated the eye in the median line. It was lodged within and behind the lens. It responded readily to the magnet. The specimen was interesting because of its unusually large surface area and its thinness.

The regular program was as follows:

1, Tuberculous Scleritis, by R. B. Metz.

Tuberculous scleritis, while important because of the changes which it may produce and the attendant lowering of vision, is of rare occurrence. It occurs mainly in young adults and more frequently in females than males. Superficial and deep forms are described, although the latter may be only a more severe involvement. The scleral swelling may be diffuse or nodular. The nodules appear as elevated areas, which may reach considerable size and are usually situated at some distance from the cornea. Although formerly considered a manifestation of some general disease like gout or rheumatism, the later tendency is to look upon it as a tuberculous manifestation. The latter conclusion is based chiefly upon the positive tuberculin reaction, which most cases show; histological examinations and animal inoculations, on the other hand, are not so conclusive. There has been some discussion as to the primary focus of infection. The iris and choroid are usually involved by extension. Some consider the primary localization to be in the uvea. The scleral inflammation is not followed by disintegration, but by resolution with the formation of dark colored cicatrix. Iritis with posterior synechia is common. Occlusion of the pupil is rare; hypopyon never occurs. The diagnosis is easily made by the injection of tuberculin. In the treatment the patient is kept out of doors and at rest, consideration being given to the nutrition of the patient. Tuberculin, in therapeutic doses, is injected subcutaneously over long periods of time. Local treatment aside from atropin is usually not required. Under such treatment the prognosis is good, complete cure without relapses and with little damage to the cornea usually resulting. Two cases were reported, as follows:

The first patient, a man of 33 years, had had an attack of choroiditis of the left eye four years previously. His family and personal histories

were negative in regard to tuberculosis. The vitreous showed opacities, the iris and ciliary body were inflamed and the anterior chamber was deeper than normal. On the posterior corneal surface were large greyish deposits and at a distance of 5 mm from the limbus was a scleral nodule the size of a pea. He could see hand movements. The Wassermann and Noguchi reactions were negative; the reaction after 2 mgm of tuberculin was positive. There was no evidence of tuberculosis elsewhere in the body. Treatment led to an increase in weight and some improvement in vision, but at the middle of the treatment the lens became cataractous. The scleral nodule disappeared without leaving a trace. The eye has remained quiet for two years.

The second case was a female, aged 18 years, in whom the disease began in the right eye two years ago. There is diffuse general opacity of the cornea, with some foci of denser opacity. The anterior chamber is deep. The lens and vitreous are normal. The circumcorneal zone of the left eye is diffusely swollen and the cornea is projected forward. The swollen zone shows a suggestion of nodule formation. The vitreous is clear, the fundus normal. The patient has pulmonary tuberculosis. Anti-tuberculous measures are being carried out under the direction of one of the city tuberculosis dispensaries and the patient is receiving tuberculin injections. (To be published in full.)

Edward Lauder, in discussion, said that in view of the prevalence of tuberculosis, tuberculosis of the eye ought to be frequently encountered. Often, however, it is difficult to decide as to the tuberculous nature of any given case, and most of the cases of scleral inflammation seen by him had yielded to antiluetic or antirheumatic treatment.

Leo Wolfenstein has had under his care a young girl who had been treated for a long time for phlyctenular conjunctivitis, with periods of improvement, but always with exacerbations. The von Pirquet reaction was positive. Under tuberculin the condition has become quiet, although the opacities have not disappeared entirely.

W. C. Tuckerman called attention to the fact that among recent writers there is a tendency to consider phlyctenular conjunctivitis tuberculous in nature.

R. B. Metz, in closing, said that in regard to the tuberculous nature of phlyctenular conjunctivitis there is much difference of opinion. Some believe that the phlyctenules are not due actually to the tubercle bacillus, but to its toxins. The value of the von Pirquet reaction in such cases is difficult to determine.

## 2, The Bronchoscope in Asthma, by S. H. Large.

The etiology of asthma is most varied, and the aim of any treatment must be to remove the primary factor which reflexly stimulates the respiratory system. The overcoming of asthma by the treatment of nasal and laryngeal abnormalities is well established. Of drugs, sodium iodid has been found most valuable. In some cases of asthma good results have been obtained by means of the bronchoscope. Stenosis of the bronchi, ulcerations and areas of abnormal sensitiveness of the bronchial mucosa have been detected and treated by the use of this instrument. In the speaker's experience with the bronchoscope in asthma, one case had yielded completely, and several others, still under treatment, are showing improvement. (To be published in full.)

W. H. Tuckerman, in discussion, said that from the paper and from the literature it appeared that the bronchoscope was an aid in the treatment of asthma, but it was impossible to determine from the literature what kind of cases should be subjected to such treatment.

## 3, The Treatment of Frontal Sinus Empyema by Irrigation, by W. J. Abbott.

In the treatment of empyema of a sinus, irrigation ameliorates the symptoms and decreases the discharge. The frontal sinus, whose opening is in such a position as to help in natural drainage, clears up more readily without irrigation than does the antrum. In some cases of

frontal sinus infection, however, irrigation is necessary. Where both the frontal and maxillary sinuses are involved, it is sometimes found that the latter improves more rapidly under irrigation than does the frontal. This would seem to be due to individual variations in the anatomy of the frontal sinus, in which septa and lateral extensions may prevent complete irrigation. The question, then, is to irrigate in such a way as to penetrate the sinus completely. If the head is held upside down, the sinus becomes filled before the fluid overflows. To accomplish such complete irrigation, the patient is placed on the table with the head in the position used in the operation for adenoids. When this position is used the irrigation seems to be much more complete, and good results are more rapidly obtained. In cases irrigated in the upright position, and then in the position advocated, the latter always washes out more discharge, even after the first irrigations in the upright position have been clear. The objection to the method is the dizziness caused by the change in position.

L. H. Baker asked as to the kind of irrigator used.

W. H. Tuckerman was of the opinion that by forcing out the air by slowly injecting the irrigating fluid the frontal sinus can usually be completely filled with the patient in the upright position. He asked in regard to the proportion of cases in which the speaker found it necessary to remove the anterior end of the middle turbinate in order to probe or irrigate the frontal sinus.

I. J. Kerr asked whether the speaker had ever tried bismuth paste for frontal sinus infections.

J. E. Cogan asked whether the method described was used in acute or subacute cases. It is surprising how few cases of frontal sinus empyema come to operation.

W. J. Abbott, in closing, said that he used a flexible silver irrigator, which can be bent in any desired shape. Frequently enough the middle turbinate must be removed to permit entrance into the frontal sinus, but he did not feel that this had any bearing upon the advisability of irrigating the sinus. Most acute cases of frontal sinus infection clear up spontaneously, because the natural drainage is sufficient. But some cases become subacute and chronic, and in these it has been his idea to use such treatment as would seem most quickly to relieve the condition. Irrigation has seemed to be useful in such cases. Where the frontal sinus extends far out laterally it appeared inconceivable to him that the fluid could be made to penetrate the entire space with the patient in the upright position. Complete filling seemed to be the thing desired, and he considered this possible in certain cases only when the patient was in the position advocated. He used the method in those cases of frontal sinus infection which do not clear up spontaneously and which are not improved by irrigation in the upright position. He had tried bismuth paste but could not see that it had any advantages.

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## CLINICAL AND PATHOLOGICAL SECTION

The ninety-third regular meeting of this Section was held at the Cleveland Medical Library, Friday, April 4, 1913, the Chairman, W. H. Merriam, in the chair.

W. T. Corlett presented a woman who showed a peculiar lesion of the tongue. The patient married nine years ago and has had three miscarriages; one child, born since the last miscarriage, lived to the age of two years. The Wassermann reaction is negative. The lesion of the tongue, a superficial ulceration, has been present for four years; it changes from time to time, the margins spreading and merging. There are no lesions elsewhere upon the body. The diagnosis lies between lues, psoriasis and beginning leukoplakia. Psoriasis can be excluded because there are no other lesions and the epidermal covering of the tongue is not thickened. The lesion is not so reddened as is characteristic of early

leukoplakia. Unusual for lues is the persistence of the lesion, without other manifestations elsewhere, and the absence of enlarged glands. In spite of these facts and of the negative Wassermann reaction, he considered the case one of lues.

H. N. Cole, in discussion, said that the history is suggestive of lues, but there have been no other evidences of this disease. The lesion of the tongue has been coming and going for the past four years.

P. A. Jacobs asked whether any specific treatment had been given. Such treatment, by stimulating the reactive powers of the body, might cause the Wassermann test to have a positive result.

W. T. Corlett said that the patient had not been given antiluetic treatment in the clinic, and according to the history she had never received constitutional treatment.

The regular program was as follows:

1, Why the Western Climate Yields Poor Results for Some Tuberculous Cases, by H. A. Berkes.

In suitable cases of tuberculosis great benefit is to be derived from change of climate. Those western regions which have a reputation for producing results in tuberculosis have it because of climate. Analysis of the factors acting beneficially in the west shows them to be such as are conducive to life in the open air. Unfortunately, too many patients expect to receive benefit from a mere change in location or appear to hope for a cure brought about by some magic property present in the air. They thus fail to receive the aid of those beneficial elements which the western climate possesses. Other factors, in addition to ignorance and lack of instruction as to personal care, lead to a failure upon the part of many to receive the benefits which they expect. The advantages of open-air life, which could be best obtained upon the ranches, are not to be gotten because of the widespread "tuberculophobia" throughout the west. Patients who expect to look after themselves are thus forced into the boarding houses in towns and cities, and admission to these must be obtained through subterfuge. Tent living for the individual is impossible, because of the difficulty in obtaining food, milk and even water. Most patients have been told that they require fresh air but have not been told what fresh air is or how to obtain it. To make matters worse, the patient left to his own resources is very apt to fall into the hands of charlatans and medical fakers. No victim of tuberculosis should be permitted to go west without full and detailed instructions as to the proper care of himself, and he should be advised of the difficulties which he may encounter in attempting to lead the sort of life which alone can help him. The west can be credited with offering patients better opportunities for out-door life, but often at considerable financial sacrifice, which the physician must weigh in order to determine whether the advantages will outweigh the disadvantages. Failures are due, not to the western climate itself, but rather to the patient's failure properly to use the advantages which the west offers. (To be published in full.)

J. E. Tuckerman, in opening the discussion, agreed that the patient himself must be considered, as well as the diagnosis and the disease. All his circumstances must be studied before he is sent away. Perhaps the objections which so many places in the west offer to the presence of patients with tuberculosis are due largely to the improper cases sent and to the improper instructions given them.

J. H. Lowman said that the paper stated well the story of the untrained and uninstructed patient. That a patient may be properly instructed, he must be well studied. He believed that, under proper care, the west and certain regions in the east, offer advantages over the local climate. Locally the greatest disadvantage is the tendency to sudden colds following temperature changes; such acute infections quickly break down the patient's resistance and nullify any gain which he may have made. He believed that every patient, for whom a change of climate is advised, should be sent to a sanatorium. No matter how straightened the



patient's circumstances may be, he should be sent to a sanatorium, even if he can afford to remain for only two or three weeks; only in this way can he learn proper self care. When his circumstances will no longer permit him to remain in the sanatorium he should go to a town near a sanatorium, where he can from time to time get advice from the sanatorium staff. The patient should be under constant instruction and should maintain a fixed residence.

S. L. Bernstein said that in his own residence in the west he had been struck by the number of patients who are led away from medical supervision by charlatans and by those patients who think they are improving. He agreed that the greatest benefit is to be derived from a stay in a sanatorium, because of the instruction which the patient receives. He had failed to see the magical value which is ascribed to tents—too much emphasis is placed upon the tent and not enough upon proper hygiene. Many advise improved and cured patients to remain in the climate which proved beneficial. He could not see the necessity for this. A cured patient, who has been well instructed and who continues to live as he has been instructed, ought to do as well in his former home as elsewhere.

B. E. Sager disagreed with the last speaker and felt that many patients again do poorly upon their return to their former homes because they have become acclimated to the west and will not do well elsewhere.

O. E. Witter said that it had been his custom to ask patients how long they intended to remain in the west and to impress upon them that they must go prepared to make a long fight. He believed it often necessary to warn a patient that he might be required to spend the rest of his life in the new locality which proved most beneficial.

J. C. Placak considered it foolish, almost criminal, to send advanced or moderately advanced cases of tuberculosis away from home—they might as well be permitted to die at home. Cases which will get well in the west will, under the same instruction and care, get well here; furthermore, they are more apt to remain well than if they have been improved in the west and then return home. In the east and the middle west there is great need of sanatoria to which the patient of moderate means might go.

H. A. Berkes, in closing, agreed that a patient who is advised to go west should be sent to a sanatorium. But the difficulty is that most sanatoria are filled and the patient waits too long without instruction before finding accommodations. It is better to treat the patient at home while making arrangements for admission to a sanatorium and while waiting for an opening. The patient thoroughly cured in the west is cured in the east. The trouble is that the predisposed but cured patient returns to his old haunts and to his old modes of life.

2, X-ray Pictures in the Early Diagnosis of Pulmonary Tuberculosis, by G. F. Thomas.

The importance of the earliest possible diagnosis of lung tuberculosis requires that every diagnostic aid be employed. With this object in view roentgenologists have devoted more and more study to methods of X-ray diagnosis, so that X-ray study often yields conclusive results when the physical signs are inconclusive. The normal lung tissue is transparent to the X-ray. Infiltration and other changes cause some increase in density. Improvements which shortened the time of exposure offered considerable advancement, but even very good plates so made were flat and had no perspective. This defect has been overcome by stereoscopic radiography, the most accurate means yet devised for detecting slight and early changes, the stage at which diagnosis is most important. The lesion following tuberculous infection of the lung varies according to the reaction of the tissue. The very early filling up of the air sacs is well brought out in the stereoscopic radiograph, presenting the picture of buds given off from a tree-like structure. Calcification, cavity formation and fibrosis all present characteristic appearances. In many cases it is possible to

differentiate between healed and active processes, and in the latter to estimate the degree of activity. The X-ray is valuable in helping in the diagnosis and in determining the prognosis as well as the proper treatment. It cannot be said that either the stereoscopic radiograph alone or physical examination alone offers the greater aid to diagnosis; the two complement and amplify each other. (To be published in full.)

J. H. Lowman, in opening the discussion, agreed that the X-ray has offered great aid in the diagnosis of lung tuberculosis in certain cases, but even the X-ray will not help in those cases where there is absolutely nothing to be made out on physical examination. In those cases where there is only a history of sudden hemorrhage or where the earliest involvement is bronchial, the radiograph did not seem to be very helpful. One must not, therefore, be misled into relying too completely upon the X-ray examination alone; the latter should be combined with a thorough physical examination and with careful scrutiny of the history of the patient.

J. P. DeWitt, of Canton, considered the X-ray very valuable in early diagnosis. In cases reacting to tuberculin, the X-ray will localize a lesion when physical signs are inconclusive. He agreed that it is possible to determine whether a lesion is healed or active and that a very good idea as to the degree of activity of a lesion can be obtained. In some cases, with only a history of sudden hemorrhage or with only a reaction to tuberculin, in which nothing was to be made out on physical examination, X-ray plates show a haziness which localizes the lesion.

H. A. Berkes mentioned a case of very early hemorrhage, in which the physical examination was very inconclusive, yet the X-ray left no doubt whatever as to the nature of the process.

G. F. Thomas, in closing, said that the comparative value of the X-ray and physical examination could be determined only by a careful study of detailed reports by the roentgenologist and the internist in a series of cases. It seemed safe to conclude that every lesion demonstrable by physical examination is shown on the stereoscopic radiograph, and that in addition the latter often shows lesions which escape detection on physical examination. In early hemorrhage there must be some pathological change, and in good radiographs the lesion is shown. When the physical examination and the laboratory diagnosis are positive, then the X-ray is valuable in determining the degree of involvement. In the differential diagnosis of pulmonary lesions the X-ray is very helpful.

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### COUNCIL MEETINGS

The regular meeting of the Council was held Wednesday, March 5, 1913, the President, H. L. Sanford, in the chair.

R. L. Turrell, E. A. Peterson and H. W. Masenheimer were elected to active membership.

The Secretary was directed to write to G. A. Duncan that the Council did not consider it wise to make any special arrangements for transportation to the Minneapolis meeting of the American Medical Association.

The following amendments to the Constitution were proposed by W. B. Laffer:

To amend Article IV to read as follows: "A President, First Vice-President, Second Vice-President, a Secretary-Treasurer," etc.

To amend Chapter V, Section 3, by adding to the end of the sentence: "except that the persons receiving the three highest votes for President shall be declared elected, in the order of the highest vote, President, First Vice-President and Second Vice-President respectively."

To amend Chapter VI, Section 2 to read: "The Vice-Presidents, in the order of precedence, during the absence," etc.

To amend Chapter IX, Section 2 to read after the words "in Novem-

ber": "not less than three candidates for President, nor less than four candidates for Trustees".

The Secretary was instructed to publish the amendments as provided in the Constitution.

The Secretary was instructed to look up the membership of the Milk Commission.

A communication from the Red Cross Society was referred to the Civic Committee.

G. K. Heidler's request that antitoxin be furnished on memorandum from the physician was referred to C. E. Ford, who said that this matter as well as similar questions relating to sputum and culture outfits had already been referred to the Board of Health and would be adjusted by it.

The Council directed that the Secretary-Treasurer be bonded in the sum of \$1000, the cost to be met by the Academy and the bond to be deposited with the bank where the Academy funds are held.

R. G. Perkins read the report of the special committee appointed to present suggestions to the Charter Commission. The report was approved with the exception of Section 12, which was referred back to the committee. The Chair appointed W. B. Laffer a special member of the committee.

A special meeting of the Council was held Tuesday, March 11, 1913, the President, H. L. Sanford, in the chair.

A motion to reconsider the report of the special committee to present suggestions to the Charter Commission carried. R. G. Perkins then reported upon the conference of the committee with a committee from the City Hospital staff and with the Board of Health. The recommendations of the committee, read in full, were adopted and the chairman of the committee was delegated to present them to the Charter Commission.

O. T. Schultz presented the report of the special committee to consider the coroner's office and requested the endorsement of the Council to the bill abolishing the office prepared by the Civic League. E. O. Houck, on invitation, presented his objections to the abolishing of the office. The report was laid upon the table and the committee was asked to report upon the relations of the proposed bill to the vital statistics law and the workmen's compensation law.

A special meeting of the Council was held Wednesday, March 26, 1913, the President, H. L. Sanford, in the chair.

A letter from J. H. Lowman, relative to the advisability of the present inquiry of the Council concerning medical items appearing in the daily press, was referred to the Council. The Secretary was requested to present a summary of the data so far obtained to the Council at its next meeting. R. K. Updegraff moved that the whole matter of the inquiry be referred to the Academy at its next meeting for discussion and decision; carried.

A. P. Hammond stated that he had been requested by the secretary of the State Medical Board to ask the Academy to endorse Senate Bills 218 and 220, the former regulating the practice of midwifery, the latter strengthening the present medical practice act. The following resolution, presented by R. E. Skeel, was adopted: That the Academy of Medicine of Cleveland does not approve of Bill No. 218 until it has been amended to state specifically in the bill the preliminary education which is to be required of midwives. Consideration of Bill No. 220 was laid on the table.

A. P. Hammond also called to the attention of the Academy that there had been complaint that nurses employed in certain of the factories of Cleveland were actually looking after injuries without supervision from physicians. The matter was referred to the Civic Committee.

E. O. Houck continued his discussion of the abolishing of the coroner's office. He agreed with the findings of the committees of the Academy and of the Civic League in regard to the coroner's office as at present administered. He suggested the broadening and strengthening of the duties of the office rather than its abolishment. If the plan proposed seemed impossible of attainment, then the bill proposed by the Civic League and presented to the Council by O. T. Schultz would meet the situation and would improve present conditions. O. T. Schultz reported upon the relation of the proposed bill to the vital statistics law and the workmen's compensation law and asked the Council to take final action upon the report of its committee on the coroner's office. On motion the report of the committee was adopted, the recommendations favoring the bill of the Civic League were endorsed and the Secretary was instructed to communicate the action of the Council to the Civic League.

R. E. Skeel presented a proposition made to the *Cleveland Medical Journal*, that the latter be consolidated with other journals in the state, the new journal to be the official organ of several of the larger academies of the state. The question brought up was whether, in the judgment of the Council, the members of the Academy would continue the support to such a publication which they now give to the *Cleveland Medical Journal*. The matter was referred to a special committee of three to inquire into the question. The chair appointed O. T. Schultz chairman of the committee with power to select the other members.

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**Workingmen's Compensation Laws and Defective Sight.**—As pointed out by Shastid, in consequence of workingmen's compensation laws, which render employers liable for injuries to their workmen, irrespective of technical matters, it is important for the employer to know to a certainty before he grants employment that the applicant is possessed of sufficient visual power to keep him from being hurt. Visual deficiencies which would jeopardize a man at work are usually due to a diseased condition of the media or of the optic nerve, retina or choroid. Refraction errors are less likely to endanger limb or life because the field of vision is not materially contracted, and because such errors are usually of a congenital nature so that the possessor of them has learned in a measure to compensate for them. But there can be no doubt that errors of such a degree as materially to reduce vision and thus require the eye to be brought closer to the work than is usual would entail danger by bringing the body in proximity to unprotected (but, under natural conditions, safe) parts of machinery.—W. Zentmayer in *Ann. Ophth.*

**Lodge and Contract Doctors Barred.**—The San Francisco County Medical Society has, through its committee on admissions, taken a stand that should receive careful consideration at the hands of all our county units. It has ruled that it will not recommend for membership any physician who is connected with lodge work or "dollar-a-month" contract work. The reason for this rule is quite as interesting as the rule itself. The argument is that physicians who are doing this work are, naturally, doing a good deal of work more or less carelessly and that, as any carelessly treated patient may bring a just suit or one which would cost the State Society a good deal of money, it is to the advantage of the society to exclude such physicians from the benefits of membership. The danger pointed out in the reason given by the committee is not imaginary; it is a very real one. We know perfectly well that any physician who is getting about ten cents a visit for his professional work is not going to give it the attention which it deserves; consciously or unconsciously, he will neglect such patients; they will get about ten cents worth of medical care. The San Francisco society is to be commended for its action and similar action is recommended to all our county societies.—(*Cal. State Jour. of Med.*)

## Roster of the Officers and Members of the Academy of Medicine of Cleveland for 1913

The list published below includes only those whose dues were received by the Secretary-Treasurer up to April 9. Errors in name or address should be reported to J. E. Tuckerman, 733 Osborn Building, at once to aid in prompt correction.

This list as published constitutes the mailing list of THE JOURNAL, and any active member failing to receive his Journal is requested to write for a copy. No name has been intentionally omitted. If your name does not appear, kindly notify the Secretary.

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C. W. EDDY, M. D.

One appointment held open for special work,  
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R. G. PERKINS, M. D.

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J. C. PLACAK, M. D.

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R. J. LAWLOR, M. D.

A. J. PEARSE, M. D.

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H. N. COLE, M. D., Experimental Medicine

LEO WOLFENSTEIN, M. D., Ophthalmological  
and Oto-Laryngological

F. B. GOTT, Attorney, Medico-Legal

T. BERNARD TANNER, P. D., Medico-Pharma-  
ceutical

W. C. FAIR, V. S., Veterinary

**Honorary Members**

Cabot, Richard C.....190 Marlboro St., Boston, Mass.

Forchheimer, F.....4th and Sycamore Sts.,  
Cincinnati, O.

Hanna, H. M.....2417 Prospect Ave., Cleveland, O.

Moorehouse, G. W.....A. C. Sanatorium,  
Saranac Lake, N. Y.

Moynihan, B. G. A.....Leeds, England

Ochsner, A. J.....718 Sedgwick St., Chicago, Ill.

Park, Roswell.....Buffalo, N. Y.

Ravenal, M. P.....University of Wisconsin.  
Madison, Wis.**Active Members**

Abbott, William J.....210 Lennox Bldg.  
 Adams, Thomas .....5018 Broadway Ave.  
 Abl, C. J.....4962 Broadway Bldg.  
 Abl, M. A.....5074 Broadway Ave.  
 Allen, Dudley P.....8811 Euclid Ave.  
 Allen, Fred Y.....3819 Cedar Ave.  
 Anderson, John .....2431 E. 83rd St.  
 Arnold, G. D.....8812 Carnegie Ave.  
 Austin, J. Brouner.....10406 Euclid Ave.  
 Bachman, U. M.....6507 Superior Ave.  
 Bailey, Robert .....1542 E. 55th St.  
 Baker, L. K.....256 Lennox Bldg.  
 Banker, N. S.....10520 Superior Ave.  
 Bard, I. W.....6318 Lorain Ave.  
 Barger, W. T.....8514 Wade Park Ave.  
 Barricelli, G. A.....919 Rose Bldg.  
 Bauman, George I.....1021 Prospect Ave.

Baumoel, S. ....3203 Superior Ave.  
 Belkowsky, I. M.....2291 E. 55th St.  
 Benner, W. J.....16803 Detroit Ave.  
 Bennett, Geo. J.....5711 Lexington Ave.  
 Bernstein, S. L.....466 Lennox Bldg.  
 Berkes, H. A.....536 Rose Bldg.  
 Biggar, H. F., Jr.....1110 Euclid Ave.  
 Bill, Arthur H.....1021 Prospect Ave.  
 Birge, Russell Hall.....1021 Prospect Ave.  
 Bishop, R. H., Jr.....602 Rose Bldg.  
 Biskind, I. J.....430 Osborn Bldg.  
 Black, C. A.....Cleveland State Hospital  
 Black, Davidson.....W. R. U. Medical College  
 Black, J. F.....446 Rose Bldg.  
 Bliss, H. C.....2705 Woodland Ave.  
 Bondy, E. R.....Central Trust Bldg.  
 Borts, M.....2584 E. 55th St.  
 Bourn, E. L.....Brecksville, Ohio  
 Bowden, D. P.....312 Citizens Bldg.

## Active Members—Continued

Boyd, W. R.	2210 E. 105th St.	Fliedner, G. B.	1821 W. 25th St.
Brainard, H. C.	5152 Superior Ave.	Follansbee, Geo. Edw.	314 New England Bldg.
Breck, Theo. B.	653 E. 105th St.	Ford, C. E.	1021 Prospect Ave.
Bretz, Irving S.	1762 E. 65th St.	Fox, J. C.	City Hospital
Briggs, Charles Edwin	118 Lennox Bldg.	Francisci, M.	3242 Lorain Ave.
Brody, Myer	Woodland Ave. and E. 37th St.	Franke, F. C.	Woodland Ave. and E. 55th St.
Brokaw, Wm. F.	2102 E. 55th St.	Fraser, J. M.	2515 E. 9th St.
Bruening, A. H.	2833 W. 25th St.	Friedrich, M.	420 Rose Bldg.
Bruner, William Evans	New England Bldg.	Friend, John M.	2803 Walton Ave.
Bubis, Jacob L.	2304 E. 55th St.	Fritch, J. C.	W. 25th St. and Bridge Ave.
Buel, J. J.	2003 W. 25th St.	Fry, Royce D.	836 Rose Bld.
Buffett, G. P.	811 Jefferson Ave., S. W.		
Bunts, Frank E.	1021 Prospect Ave.	Gallagher, J. V.	254 Lennox Bldg.
Burdick, Halbert J.	4415 Cedar Ave.	Gamble, John K.	1302 E. 84th St.
Burke, Thomas A.	Rose Bldg.	Garber, M.	6204 St. Clair Ave.
		Geib, Frank J.	1021 Prospect Ave.
Calkins, T. J.	8912 Superior Ave.	Gentsch, Charles	2822 Franklin Ave.
Campbell, A. D.	7503 Superior Ave.	Gernhard, W. E.	1942 W. 65th St.
Campbell, O. B.	612 Euclid Ave.	Gerstenberger, H. J.	1021 Prospect Ave.
Carey, M. J.	1952 E. 105th St.	Gill, A. H.	7102 Central Ave.
Carlisle, I. C.	720 E. 105th St.	Glass, G. F.	13491 Euclid Ave.
Carlton, S. E.	3343 Broadway Rd.	Goodman, I. J.	2050 W. 25th St.
Carpenter, M. W.	662 Rose Bldg.	Goodwin, E. M.	10403 St. Clair Ave.
Caruso, G.	919 Rose Bldg.	Graber, C. Lee	15703 Detroit Ave.
Casto, Frank M.	520 Rose Bldg.	Gregory, Wm. M.	75 Bridge St., Berea, O.
Cerri, Nicola	418 Superior Bldg.	Grossman, Jos. H.	2196 E. 81st St.
Chamberlain, Webb P.	7405 Detroit Ave.	Gunsolly, W. N.	1021 Prospect Ave.
Chamberlin, Wm. B.	1021 Prospect Ave.		
Chambers, William	1521 E. 82nd St.	Haefele, G. L.	1520 Clark Ave., S. W.
Cheatham, Arthur M.	13010 Miles Ave.	Haldy, W. A.	Superior Ave. and E. 111th St.
Childs, Lyman W.	420 Rose Bldg.	Hall, C. A.	1021 Prospect Ave.
Chisholm, H. F.	1120 Euclid Ave.	Hamann, C. A.	1021 Prospect Ave.
Civins, Albert I.	201 Reserve Bldg.	Hammond, A. P.	7412 Woodland Ave.
Clapp, Harold T.	1308 New England Bldg.	Henderson, H. E.	1924 E. 66th St.
Clark, Chas. H.	Cleveland State Hospital	Hannum, Burdet G.	416 Caxton Bldg.
Clark, F. S.	936 Rose Bldg.	Hannum, E. A.	906 Rose Bldg.
Clark, Wm.	7803 Cedar Ave.	Hannum, E. S.	3076 W. 51st St.
Cobb, Percy W.	5515 Lexington Ave.	Hanson, D. S.	3290 E. 55th St.
Cogan, J. E.	707 Rose Bldg.	Harpster, Clement I.	12302 Superior Ave.
Cohen, Arnold	210 Reserve Trust Bldg.	Hartzell, H. J.	9402 W. Madison Ave.
Cole, Harold Newton	2047 E. 9th St.	Haskins, Howard D.	W. R. U. Medical College
Colvin, B. B.	11214 Superior Ave.	Hay, Charles H.	2008 United Bank Bldg.
Connell, A. E.	7115 Lexington Ave.	Heath, J. A.	1378 Marquette Ave.
Cook, A. J.	5494 Broadway Ave.	Heidler, G. K.	7610 Kinsman Rd.
Cook, Joseph E.	515 New England Bldg.	Heimlich, Daniel	664 Rose Bldg.
Coplan, M.	2054 Fulton Rd.	Hempstead, Helen	10509 Euclid Ave.
Coppedge, E. P.	4726 Superior Ave.	Henry, Arthur S.	6506 Quincy Ave.
Corlett, W. T.	3618 Euclid Ave.	Herrick, Frederick C.	112 Lennox Bldg.
Corrigan, F. P.	254 Lennox Bldg.	Herrick, H. B.	Euclid Ave. and E. 105th St.
Costello, T. A.	Wade Park Ave. and E. 107th St.	Herrick, W. H.	746 Euclid Ave.
Cowgill, Wm. W.	8507 Wade Park Ave.	Hickin, F. W.	W. 14th and Clark Ave.
Cox, Ernest H.	2047 E. 9th St.	Hitchings, Frederick Wade	10406 Euclid Ave.
Coy, N. L.	9720 Madison Ave.	Hobson, John F.	17618 Detroit Ave.
Crawford, C. Calderine	10312 St. Clair Ave.	Hobson, Joseph F.	1721 Prospect Ave.
Crile, George W.	1021 Prospect Ave.	Hobson, James D.	1021 Prospect Ave.
Crowell, Wilbur S.	1274 Main Ave., N. W.	Hobson, Willis S.	1021 Prospect Ave.
Crumrine, H. C.	5606 Euclid Ave.	Hole, Charles M.	8920 Cedar Ave.
Cummer, Clyde L.	Rose Bldg.	Holliday, Benj. W.	6917 Euclid Ave., Colonial Flats
Cutler, Franklin E.	936 Rose Bldg.	Holmes, George	9109 Detroit Ave.
		Hoover, C. F.	702 Rose Bldg.
Davidson, J. F.	3116 Cedar Ave.	Horne, E. C.	9011 Broadway Ave.
Davis, Howard H.	1730 W. 25th St.	Hosick, William A.	10631 Euclid Ave.
Davis, Herbert Leland	725 Schofield Bldg.	Houck, E. O.	4905 Franklin Ave.
Dexter, Richard	Rose Bldg.	Howard, A. B.	736 Rose Bldg.
Dial, Emory L.	8911 Lorain Ave.	Howard, W. T.	1838 E. 65th St.
Dickenson, John	1021 Prospect Ave.	Howland, A. P.	2256 E. 55th St.
Difford, C. L.	Lorain Ave. and W. 65th St.	Humiston, W. H.	536 Rose Bldg.
Dittrick, Howard	1021 Prospect Ave.	Hutchins, Fannie C.	416 Rose Bldg.
Doolittle, Wm. F.	9510 Euclid Ave.	Hyde, A. G.	Cleveland State Hospital
Droege, Robert C.	Lorain Ave. and W. 25th St.	Hyde, Wm. H.	8821 Lorain Ave.
Drysdale, H. H.	846 Rose Bldg.		
Dunn, J. J.	661 Rose Bldg.	Ingalls, N. W.	W. R. U. Medical College
		Ingersoll, J. M.	1021 Prospect Ave.
Ehret, C. A.	821 Schofield Bldg.		
Elliott, Ralph W.	10509 Euclid Ave.	Jacobs, P. A.	664 Rose Bldg.
Englander, S.	430 Osborn Bldg.	Jenkins, Alfred A.	1721 E. 55th St.
Evans, Samuel W.	3229 E. 93rd St.	Jenkins, Henry	1845 E. 75th St.
		Jones, J. Arthur	902 Rose Bldg.
Farnsworth, G. Bourne	2047 E. 9th St.		
Fisher, Ralph E.	946 Rose Bldg.		

## Active Members—Continued

Jones, J. D.	7252 Broadway Ave.	Nelson, Chas. F.	711 Schofield Bldg.
Kaestlen, S. E.	2063 W. 25th St.	Neuberger, John	1544 W. 25th St.
Kahn, M.	Central Ave and E. 55th St.	Neuberger, Joseph A.	6424 St. Clair Ave.
Kelker, Henry C.	9856 Lorain Ave.	Newcomb, R. B.	Society for Savings Bldg.
Kelley, S. W.	2255 E. 55th St.	Norton, F. B.	2164 E. 46th St.
Kerr, I. J.	314 New England Bldg.	Nungesser, J. J.	7216 Superior Ave.
Keyes, E. W.	1912 W. 65th St.	Nuss, John C.	5329 Fleet Ave.
Klaus, E.	1699 W. 25th St.	Nuss, Wm.	11636 Detroit Ave.
Klaus, M. H.	4506 Lorain Ave	Oakley, F. A.	216 Lennox Bldg.
Knowlton, L. G.	Berea, O.	Ochs, K. E.	2407 St. Clair Ave.
Kofron, J. V.	5312 Broadway Ave.	Ochsner, R. J.	2091 E. 90th St.
Konrad-Filipiak, Frances	6827 Forman Ave.	Ormsby, H. B.	446 Rose Bldg.
Kopfstein, F. T.	8020 Superior Ave.	Osborn, Wm. O.	1021 Prospect Ave.
Kotershall, J. J.	2841 W. 25th St.	Osmond, J. D.	1021 Prospect Ave.
Kraus, C. R.	1779 E. 89th St.	Oster, L. W.	3403 Superior Ave.
Krebs, P. H.	2736 W. 25th St.	Oswald, B. Frank	11809 Detroit Ave.
Kurtz, Harry B.	1002 Rose Bldg.	Parke, Milton J.	821 Schofield Bldg.
Kuta, F. J.	7326 Broadway Ave.	Parker, C. B.	1521 Euclid Ave.
Ladd, L. W.	1021 Prospect Ave.	Parsons, Willis T.	1712 Detroit Ave.
Laffer, Walter B.	1002 Rose Bldg.	Patton, C. C.	17104 Detroit Ave.
Landgrebe, Wm. A.	10507 Superior Ave.	Paulin, N. O.	2028 E. 55th St.
Lanzer, A. H.	1432 Addison Rd.	Pearse, Arthur J.	10427 St. Clair Ave.
Large, Secord H.	536 Rose Bldg.	Perkins, R. G.	W. R. U. Medical College
Latimer, Jay A.	10508 Superior Ave.	Perry, A. H.	49 Henry St., Berea, O.
Lauder, Edward	1021 Prospect Ave.	Perry, W. H.	560 Rose Bldg.
Lee, H. J.	1925 E. 84th St.	Peskind, A.	2414 E. 55th St.
LeFevre, Walter Irwin	218 Lennox Bldg.	Peskind, S.	2414 E. 55th St.
Lemon, W. L.	1730 E. 27th St.	Peskind, B.	2414 E. 55th St.
Lenhart, C. H.	1021 Prospect Ave.	Peterka, Edward	5601 Broadway Ave.
Lenker, John N.	1021 Prospect Ave.	Peterson, E. A.	Board of Education
Lewis, George H.	8605 Detroit Ave.	Phillips, John	3849 Prospect Ave.
Lewis, Joseph M.	436 Rose Bldg.	Pilcher, J. D.	12442 Auburndale Ave.
Lichty, M. J.	1803 E. 82d St.	Pitkin, Carlos E.	688 E. 105th St.
Lincoln, Wm. R.	210 Lennox Bldg.	Placak, Jos. C.	420 Rose Bldg.
Linn, Fred. W.	5300 Lorain Ave.	Plannette, Herbert L.	8221 Superior Ave.
Lower, William E.	1021 Prospect Ave.	Plent, J. B.	5634 Broadway Ave.
Lowman, J. H.	1807 Prospect Ave.	Pomeroy, Lawrence A.	2047 E. 9th St.
Lucas, W. Harris	2004 W. 25th St.	Pope, Carlyle	1021 Prospect Ave.
Lueke, A. W.	1780 E. 55th St.	Powell, E. A.	713 Schofield Bldg.
Lupeson, H.	2292 E. 55th St.	Powell, H. H.	2714 Prospect Ave.
McAfee, J. D.	City Hospital	Prendergast, David	1426 Ridgewood Ave.
McDonald, C. L.	254 Lennox Bldg	Prudhomme, A. J.	3906 Lorain Ave.
McGay, N. P.	898 E. 105th St.	Quayle, John H.	1110 Euclid Ave.
McGee, J. B.	8117 Woodland Ave.	Rasing, Wm. B.	1395 E. 9th St.
McHenry, Junius H.	1021 Prospect Ave.	Rhodes, E. B.	13425 Euclid Ave.
McMicheal, J. C.	10502 St. Clair Ave.	Richards, C. E.	2507 Archwood Ave.
McNamara, Frances X.	8908 Superior Ave.	Riegelhaupt, Samuel	2241 E. 46th St.
McPeck, E. E.	8303 Hough Ave.	Rieger, Walter H.	759 Leader Bldg
MacFarland, C. H.	8444 Broadway Ave.	Riewel, H. V.	2151 E. 55th St.
MacLachlan, John	3849 Prospect Ave.	Rigelhaupt, Wm.	1814 W. 25th St.
Macleod, George D.	1556 Addison Rd.	Riley, J. A.	2162 E. 86th St.
Macleod, J. J. R.	W. R. U. Medical College	Robb, Hunter	702 Rose Bldg.
Manley, R. M.	738 Schofield Bldg.	Rockwood, Harry L.	Detroit and Fry Ave.
Manning, W. J.	Detroit Ave. and W. 65th St.	Rogers, Henry W.	New England Bldg.
Marine, David	W. R. U. Medical College	Romig, E. F.	13586 Euclid Ave.
Martin, W. Claude	1341 E. 110th St.	Rosenberg, E.	8231 Woodland Ave.
Maschke, Alfred S.	1021 Prospect Ave.	Rosewater, N.	2429 E. 55th St.
Masenhimer, H. W.	105 Lennox Bldg.	Roth, Frank	8623 Quincy Ave.
Maska, John E.	2184 W. 14th St.	Rowland, V. C.	10509 Euclid Ave.
Merriam, W. H.	1021 Prospect Ave.	Ruh, H. O.	Lakeside Hospital
Merrick, W. E.	11702 St. Clair Ave.	Russell, George Clark	1780 E. 9th St.
Metz, Roy B.	1021 Prospect Ave.	Rust, Edwin G.	326 Lennox Bldg.
Metzenbaum, Myron	768 Rose Bldg.	Sanford, Henry L.	1021 Prospect Ave.
Miller, Amanda H.	2443 E. 55th St.	Sawyer, John P.	536 Rose Bldg.
Miller, Wm. Theodore	1110 Euclid Ave.	Schlesinger, W. A.	5409 Broadway Rd.
Milliken, B. L.	1110 Euclid Ave.	Schlink, Albert G.	8608 Hough Ave.
Minor, Irving C.	6035 Superior Ave.	Schmoldt, F. J.	446 Rose Bldg.
Mizer, Thomas J.	Lorain and Fulton Rd.	Schott, M.	1355 E. 55th St.
Monaghan, E. P.	3372 E. 93rd St.	Schultz, Oscar T.	W. R. U. Medical College
Monson, S. H.	466 Lennox Bldg.	Scott, A. Clynton	1940 E. 73rd St.
Moore, J. M.	6726 St. Clair Ave.	Scott, N. Stone	603 Citizens Bldg.
Morgan, John B.	6603 Lorain Ave.	Scully, A. P.	2518 Detroit Ave.
Morrill, Gordon M.	2047 E. 9th St.	Season, Edwin H.	10403 Euclid Ave.
Morton, F. J.	4329 Lorain Ave.	Sexton, F. E.	5132 Superior Ave.
Munsie, James	1632 E. 65th St.	Shackleton, W. E.	1021 Prospect Ave.
Nachtigall, B.	3039 W. 25th St.		
Nash, Archibald C.	10502 St. Clair Ave.		



Active Members—Continued

Sharp, Wilfred D.....	1500 E. 105th St.	Tims, W. A.....	1488 E. 105th St.
Sherman, H. G.....	736 Rose Bldg.	Towslee, Lillian G.....	1021 Prospect Ave.
Shirey, O. M.....	1021 Prospect Ave.	Tripp, Ira A.....	1021 Prospect Ave.
Shirkey, U. S. L.....	6404 Lorain Ave.	Tuckerman, J. E.....	1021 Prospect Ave.
Silbermann, J.....	5217 Woodland Ave.	Tuckerman, W. C.....	1021 Prospect Ave.
Sill, R. H.....	2510 Franklin Ave.	Tuckerman, W. H.....	1021 Prospect Ave.
Skeel, A. H.....	1834 E. 65th St.	Turrell, R. L.....	1103 E. 79th St.
Skeel, R. E.....	1021 Prospect Ave.	Updegraff, R. K.....	7511 Franklin Ave.
Sloan, Harry G.....	1021 Prospect Ave.	Upson, George D.....	759 Leader Bldg.
Smigel, P. S.....	7211 Broadway Ave.	Upson, Henry S.....	515 New England Bldg.
Smith, C. W.....	2069 Cornell Rd.	Wagner, H. G.....	702 Rose Bldg.
Smith, D. B.....	315 The Arcade	Wagner, L. H.....	3056 Payne Ave.
Smith, George Seeley.....	1021 Prospect Ave.	Ward, C. E.....	1021 Prospect Ave.
Smith, Joseph T., Jr.....	628 Rose Bldg.	Warner, A. R.....	Lakeside Hospital
Snow, Minabel.....	416 Rose Bldg.	Warner, W. C.....	1752 E. 89th St.
Sollmann, Torald.....	W. R. U. Medical College	Weber, O. A.....	1021 Prospect Ave.
Soyer, G. P.....	1846 W. 25th St.	Weber, W. C.....	803 Rose Bldg.
Spencer, John G.....	420 Rose Bldg.	Webster, H. H.....	4234 Pearl Rd.
Spicer, D. M.....	5412 Lorain Ave.	Webster, S. J.....	4234 Pearl Rd.
Spitzig, B. L.....	446 Rose Bldg.	Wedler, C. R.....	4504 Superior Ave.
Spurney, A. B.....	2584 E. 55th St.	Weir, William H.....	1110 Euclid Ave.
Spurney, A. F.....	1021 Prospect Ave.	Wells, J. H.....	1858 E. 55th St.
Staral, J. A.....	858 Rose Bldg.	West, K. S.....	Cleveland State Hospital
Stepp, Morris D.....	Payne and E. 24th St.	Wheelock, L. A.....	12012 Euclid Ave.
Stern, Walter G.....	821 Schofield Bldg.	White, C. C.....	5402 Superior Ave.
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Steuer, Joseph C.....	956 Rose Bldg.	Wickersham J. W.....	Detroit, Mich.
Stevenson, G. W.....	2196 E. 93rd St.	Wille, Clarence W.....	U. S. Marine Hospital
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Stewart, John Ross.....	628 Rose Bldg.	Williams, T. B.....	6403 Quincy Ave.
Stoeltzing, Cornelia A.....	759 E. 105th St.	Witter, C. Orville.....	1838 W. 57th St.
Stone, Charles W.....	Rose Bldg.	Wolfenstein, Leo.....	846 Rose Bldg.
Stone, Emil H.....	Suite 8, 5607 Euclid Ave.	Wood, Frederick J.....	W. 25th St. and Church Ave.
Storey, Alvin S.....	7100 Detroit Ave.	Wood, J. S.....	712 E. 152nd St.
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Stuart, Charles C.....	Lennox Bldg.	Wyckoff, C. W.....	2500 E. 35th St.
Sunkle, Robert H.....	2107 Clark Ave.	Yarian, Norman C.....	7405 Detroit Ave.
Taft, Robert E.....	9104 Union Ave.	Yoder, H. E.....	8900 Lorain Ave.
Tarr, H. M.....	1841 Euclid Ave.	Yoder, Ivan I.....	W. 25th St. and Detroit Ave.
Taylor, A. C.....	13576 Euclid Ave.	Young, Samuel A.....	4021 E. 71st St.
Taylor, T. J.....	9410 Pierpont Ave.	Young, Thomas C.....	3524 E. 93rd St.
Thomas, Geo. F.....	1021 Prospect Ave.	Zimmer, Otto F.....	4612 Clark Ave.
Thomas, J. J.....	1110 Euclid Ave.		
Thomas, Oscar T.....	1021 Prospect Ave.		
Thompson, Clive W.....	11702 St. Clair Ave.		
Thornton, Wm. J.....	11308 St. Clair Ave.		

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Browning, Chas. H.....	Oberlin, O.	Herrick, Henry J.....	Hudson, O.
Case, Clarence E.....	Park and Center Sts., Ashtabula, O.	Hoover, Chas. S.....	Alliance, O.
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Cox, S. S.....	Wagner Block, Lorain, O.	Hubbell, W. B.....	146 Middle Ave., Elyria, O.
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Cushing, C. H.....	33 Century Block, Elyria, O.	Jacobson, J. H.....	237 Michigan St., Toledo, O.
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Paterson, H. D.....	423 Columbus Ave., Sandusky, O.	Tidball, A. H.....	Garrettsville, O.
Pomeroy, F. S.....	Chardon, O.	Walker, A. B.....	319 W. Tuscarawas St., Canton, O.
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Rankin, George T.....	75 S. Forge St., Akron, O.	Weitz, George J.....	Boonville, Mo.
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Reynolds, R. D.....	Greenspring, O.	Weston, Herbert T.....	615 Hartman Bldg., Columbus, O.
Runyon, Miriam T.....	Oberlin, O.	Wolf, Leslie A.....	Ravenna, O.
Schild, Edward H.....	338 So. Cleveland St., Canton, O.	Zantiny, William O.....	Jefferson, O.
		Zininger, George F.....	The Colonial, Canton, O.

## Associate Members

### Attorneys

Boone, Glen A.....	808 Perry-Payne Bldg.
Clum, A. ....	1325 Rockefeller Bldg.
Gott, F. B.....	Court of Common Pleas
Hadden, Alexander.....	Probate Judge's Office
Lee, Richard H.....	806 American Trust Bldg.
Maurer, W. F.....	810 American Trust Bldg.
Payer, Harry F.....	1013 Williamson Bldg.

### Dentists

Barnes, Varney E.....	867 Rose Bldg.
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### Pharmacists

Benfield, C. W.....	Payne and E. 55th St.
Fox, Willard M.....	9702 Cedar Ave.
Hankey, Wm. T.....	1382 West 9th St.
Hopp, Lewis C.....	1104 Euclid Ave.
Muhlhan, Otto C.....	10508 Cedar Ave.
Petersilge, Emil.....	2134 Woodland Ave.
Selzer, E. R.....	1600 East 117th St.

### Veterinarians

Bisbee, W. A.....	5734 Portage Ave.
Burrows, Samuel.....	2210 East 71st St.
Considine, Jas. B.....	3302 West 25th St.
Cooley, A. S.....	2050 East 79th St.
Cunningham, A. E.....	3826 Carnegie Ave.
Dunn, L. J.....	406 City Hall
Eddy, C. W.....	2905 Brainard Ave.
Fair, W. C.....	625 Long Ave.
Hart, A. C.....	3225 West 65th St.
Mawer, C. C.....	6009 Bridge Ave.
Powell, R. R.....	3302 West 25th St.
Redhead, W. H.....	3225 West 65th St.
Roueche, R. C.....	6811 Detroit Ave.
Shephard, E. H.....	1956 East 105th St.
Walway, W. H.....	9012 Miles Park Ave.
Way, Rixford, D.....	1950 East 57th St.

### Miscellaneous

Waite, F. C., Ph. D.....	W. R. U. Medical College
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**The Fly.**—It is better to screen the cradle and wear a smile than scoff at the precaution and wear mourning.—Flies in the diningroom usually precede nurses in the sick-room.—Screens in the windows prevent crepe on the door.—A fly in the milk may mean a member of a family in the grave.—A fly has natural enemies; the most persistent and most effective should be man.—It costs less to buy a screen door than to get sick and lay off for a month.—It's a short haul from the garbage can to the dining-table via the fly route.—(*Monthly Bull. N. Y. State Dep't of Health.*)

**Factors in Occupational Diseases.**—Imperfect ventilation, poor light, and poor general surroundings in factories.—Absence of means for successfully withdrawing dust from all factories.—Imperfect supervision of the workers.—Inadequate washing appliances and facilities.—Lack of knowledge on the part of the workers as to the peculiar menace in their particular occupation.—Lack of response by employers to the appeal for better surroundings.—Lack of cooperation on the part of the employed to take advantage of the advances made.—H. B. Blakey in *Monthly Bull. Ohio State Board of Health.*

## Book Reviews

Cyclopedia of American Medical Biography. By Howard A. Kelly, M. D., Professor of Gynecologic Surgery at Johns Hopkins University, Baltimore. Two octavo volumes averaging 525 pages each, with portraits. Philadelphia and London: W. B. Saunders Company, 1912. Per set: Cloth, \$10.00 net; Half Morocco, \$13.00 net.

One rarely if ever uses a dictionary for other purposes than those of reference; even a biographical dictionary is scarcely attractive as consecutive reading. Yet one can browse in Kelly's cyclopedia of medical biography by the hour without losing interest. It is a compendium of incidents and facts from which a veritable history of medicine in America could be compiled. There is an introduction containing rapid sketches of the growth and development of the various departments of medicine. Of these the one on gynecology tells of the dramatic evolution of this specialty with unflagging interest. The coterie of surgeons in New York who devoted themselves to it held the attention of the world for years and their story is told rapidly and well. But one looks in vain for the name of Noeggeroth, who was early so identified with the theory of latent gonococcus infections. Neither is Ernst Krackowizer, the eminent surgeon, given place, although there is chance reference to him in the body of the text. In perusing the book, one runs through the introduction with increasing pleasure and comes to the list of names in the cyclopedia proper with a feeling akin to enthusiasm. Some two hundred and thirty-five authors have collaborated with the editor and have contributed in many instances sprightly and lively accounts of the medical worthies who have left their mark in local and national annals.

It is interesting to glean, as one turns the pages, that among the doctors are included Louis Agassiz, Benjamin Franklin, Asa Gray, Oliver Wendell Holmes, Samuel Howe, (a most entertaining sketch with reference to Laura Bridgeman), Robert Dale Owen, Benjamin Silliman and William James. That James, probably the most original of American philosophers, was an instructor in anatomy in Harvard will come as a surprise to many. One learns that John Archer (whose portrait the writer remembers seeing in the State House at Annapolis) was the first graduate in medicine in America. He graduated June 21, 1768. He was a bachelor of arts from Princeton, bore his honors worthily and had five sons who studied medicine. Emily Blackwell in 1849 was the first woman in America to take a medical degree. Five years later her sister received her degree in Cleveland. William E. Horner is the subject of a very sympathetic sketch. From his story and those of other early Philadelphia anatomists one gets an excellent idea of that indefatigable group of men. C. W. Long of Athens is given the credit of anesthesia, although it took the courage of a Morton to make it practicable. There is of course an appreciative biography of Ephraim McDowell. As to Joseph McDowell, that terrible medieval enemy of Pope's school, the editor could not refrain from quoting some of his scathing invectives. There are men still living who remember that wordy duel.

Thus there are, scattered along under the various names, amusing, instructive and interesting anecdote of rural practice, quaint beginnings, resurrections, early medical schools, rivalries and successes that make genial reading on a quiet evening. Although most of the articles are succinct, one does not resent the condensation of the main facts into small space. There is not that feeling of irritation that often comes on reading similar conglomerate books. Occasionally one's favorites are summarily dealt with, but space is almost invariably given where national interest, genius, a very unusual career or dramatic interest demands it. While the book is a book of men's names, it deals secondarily with subjects and weaves them among and under the names so seductively that the reader is led unconsciously further on, as the student is who works

out his mythology from a lexicon. This cyclopedia is a monument of patient work and an invaluable contribution to the history of American medicine. It is not yet complete and the editor has now much material ready for his second edition through his continuous labor and research.  
J. H. L.

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Textbook of Ophthalmology in the Form of Clinical Lectures. By Dr. Paul B. Roemer, Professor of Ophthalmology at Greifswald. Translated by Dr. Matthias Lanckton Foster. Vol. II: Cloth, pp. xv and 295, 61 figures and 2 colored plates, \$2.50 net. Vol. III: Cloth, pp. xx and 324, 73 figures and 4 colored plates, \$2.50 net. Rebman Company, 1123 Broadway, New York, 1913.

The first volume of this work was reviewed on page 304 in the April, 1912 number of this Journal. The general comment there made applies as well to the later volumes.

The second volume contains chapters on injuries of the eye, diseases of the eyelids, vitreous, sclera, lachrymal organs and orbit, and muscle balance and glaucoma. Under injuries, special consideration is given to sympathetic iridocyclitis, and under glaucoma the present knowledge of the nature of the circulation of intraocular fluids and its relation to tension are reviewed.

The third and last volume has chapters on the normal and abnormal pupillary reactions with their physiologic and diagnostic significance, the various ocular pareses, ocular neurology, diseases of the choroid, optic nerve and retina, and functional testing of the eye. Throughout the work the author has kept in mind that the eye is an integral part of the body and has given due consideration to the bearing of eye conditions both with regard to treatment and diagnosis of general diseases as well as to the care of the eye itself. In the chapters on pupillary reaction and neurology, the value of eye symptoms in diagnosis of nervous diseases and brain tumors is quite carefully considered.

In addition, volume three contains a complete list of the illustrations and plates and an index for all three volumes. As it is the intention of the publishers to combine the three volumes into one, at the price of \$7.50, it is unnecessary to criticise the lack of indices in the first two volumes.  
W. C. T.

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Diseases of the Stomach, Intestines, and Pancreas. By Robert Coleman Kemp, M. D., Professor of Gastro-intestinal Diseases, New York School of Clinical Medicine. Second edition, revised and enlarged. Octavo of 1021 pages, with 388 illustrations. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$6.50 net; Half Morocco, \$8.00 net.

The second edition of this work has been thoroughly revised and contains several new subjects, the most important being chapters on Colon Bacillus Infection and on Diseases of the Pancreas. There is also a very good chapter on Diverticulitis. One feature of this book that will appeal strongly to the general practitioner is the full discussion of treatment with numerous prescriptions. One objection that might be offered is that the author shows a tendency to polypharmacy, a great many drugs being advised, without making clear their indications. It seems to the reviewer that it would be better to give a few drugs with a very definite conception as to their physiological action. It is to be greatly regretted that a writer of the standing of Doctor Kemp should advise the use of such nostrums as Listerine and Glycothymoline (See page 394). One valuable feature is the publication of numerous tables of differential diagnosis. The discussion of the pathological physiology of the gastrointestinal diseases is very meagre. Altogether the book will prove useful and interesting to internists.  
J. P.

Surgery of the Brain and Spinal Cord, Based on Personal Experiences. By Prof. Fedor Krause, M. D., Geh. Medizinalrat, Dirigierender Arzt am Augusta Hospital zu Berlin. English adaptation by Dr. Max Thorek, Surgeon-in-Chief, American Hospital, Chicago, etc. Vol. II: Cloth, pp. xxviii and 537; with 94 figures in the text, 14 of which are colored; 27 colored figures and 4 halftone figures on 15 plates; \$7.00 net. Vol. III: Cloth, pp. xx and 382; with 42 figures (3 of which are colored) in the text, and 47 colored figures on 22 plates; \$7.00 net. Rebman Company, 1123 Broadway, New York, 1912.

The translation of Professor Krause's extensive monograph on the surgery of the brain and spinal cord will afford many an opportunity of profiting by the great experience and careful observations of the author, who has long devoted particular attention to neurological surgery, and is a recognized authority.

Vol. II of the present translation contains a chapter of over 200 pages on epilepsy, in which all the various forms are discussed. The results of operative treatment are very variable; some are quite satisfactory, others are failures. The rest of the volume is devoted to neoplasms of the brain. The detailed clinical histories are of much value, and one is impressed with the accurate observations of the author, who had associated with him, in many of the cases, Professor Oppenheim.

In Vol. III are considered intracranial suppurations and injuries, and the surgery of the spinal cord. The affections of the cord are accorded the same careful study as those of the brain as to symptomatology, diagnosis and operative measures, and are illustrated by numerous case histories. The illustrations are numerous and of the highest grade; particularly fine are the colored plates, which beautifully depict surgical and pathological conditions.

C. A. H.

Infant Feeding. By Clifford G. Grulee, A. M., M. D., Assistant Professor of Pediatrics at Rush Medical College, Attending Pediatrician to Cook County Hospital. Octavo of 295 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$3.00 net.

This work is the result of a failure of the American pediatricians to give due recognition to the advances made within recent years in the subject of infant feeding and nutritional disturbances by the workers in Germany. Inasmuch as real advances have been made, this work meets a long-felt need. The work itself, however, is not what it might have been although it will be of decided value to practitioners, students, and especially to those teachers of infant feeding who have felt the need of reading matter that would enable their students to acquaint themselves with the opinions developed abroad.

To the reviewer its biggest fault is the fact that it is not uniformly complete and accurate. The stool cuts are very poor, but this is the fault of the publisher. Under our present existing conditions the work is to be decidedly recommended and undoubtedly the second edition will come much closer to the book for which many are still looking; namely, one that briefly, concisely, completely and clearly presents the subject in a manner that has been best accomplished in the German literature by Langstein-Meyer.

H. J. G.

Diseases of the Genito-Urinary Organs and the Kidneys. By Robert H. Greene, M. D., Professor of Genito-Urinary Surgery at the Fordham University, New York; and Harlow Brooks, M. D., Assistant Professor of Clinical Medicine, University and Bellevue Medical College. Third Revised Edition. Octavo of 639 pages, 339 illustrations. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$5.00 net; Half Morocco, \$6.50 net.

The third edition of this standard work contains much new material.

The recent rapid advances in diagnostic methods in the urinary tract, made possible by the introduction of new instruments of precision and new means of obtaining information, require the revision of a urological text book published even a few years ago in order that it may be at all up-to-date. The authors have realized this fact, and in their preface they state that in introducing new material, they have attempted to recommend only such new methods and procedures as they believe to have been proven of definite value, or which they have personally investigated in their clinics.

In one respect the volume seems to the reviewer to be stronger than many other textbooks of its kind; considerable space is devoted to the so-called medical affections of the kidney. In this way the medical and surgical aspects of kidney disease receive a better balanced consideration than is usually found.

H. L. S.

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Compendium of Diseases of the Skin. Based on An Analysis of Thirty Thousand Consecutive Cases. With a Therapeutic Formulary. By L. Duncan Bulkley, A. M., M. D., Physician to the New York Skin and Cancer Hospital, etc. Fifth revised edition. Cloth, 8vo, pp. xi and 286, \$2.00. Paul B. Hoeber, 69 East 59 Street, New York, 1912.

This is the fifth edition of the Manual of Diseases of the Skin with a Therapeutic Formulary by L. Duncan Bulkley, A. M., M. D. This little book of 286 pages is widely known and recognized as brief and concise, and yet of sufficient detail to be of practical value to the student and practitioner on the subject of diseases of the skin.

It covers briefly and concisely the anatomy and physiology of the skin, the symptomatology, etiology and treatment of the commoner skin diseases, and especially a formulary of value to the hurried practitioner. The volume contains all of the latest and best upon its subject, based upon an analysis of thirty thousand consecutive cases.

H. B. K.

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The Collected Works of Christian Fenger, M. D., (1840-1902). Edited by Ludwig Hektoen, M. D., Professor of Pathology at Rush Medical College. Two octavo volumes averaging 525 pages each, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Per set: Cloth, \$15.00 net; Half Morocco, \$18.00 net.

In these two volumes is republished nearly everything written by the late Professor Fenger. Coleman G. Buford has gotten together the material and Ludwig Hektoen has acted in the capacity of editor. There are in all about seventy-five articles, some of them being merely case reports, while others are lengthy dissertations upon important pathological and surgical subjects. There is also a brief autobiography, written for the Danish Government, upon the occasion of Fenger's receiving the order of Knight of the Dannebrog.

As a pioneer pathologist and scientific surgeon in Chicago, Fenger accomplished a remarkable work. His zeal for truth, his accurate and painstaking observations, his modesty and kindness of heart endeared him to his students, assistants and all who came in close contact with him, and did much to raise their ideals. Conversations with numerous physicians and surgeons in the northwest have impressed the reviewer with the great love and admiration in which Fenger was held, and the publication of his papers in book form, under the auspices of the Fenger Memorial Association, is a fitting and praiseworthy method of perpetuating his memory.

Among the more important contributions are those relating to the pathology and surgery of the biliary passages and particularly of the kidneys and ureter, in which subjects Fenger did pioneer work and upon which his fame largely rests.

C. A. H.

Sexual Impotence. By Victor G. Vecki, M. D., Consulting Genito-Urinary Surgeon to the Mount Zion Hospital, San Francisco. Fourth edition, enlarged. 12mo of 394 pages. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$2.25 net.

During the past few years there has been a growing inclination to a more rational consideration of the functions of the sexual organs and their pathology. In this book, which has now reached its fourth edition, a very full discussion is given of the causes of impotence in the male and the treatment.

J. P.

### Acknowledgements

International Medical Monographs. Diabetes: Its Pathological Physiology. By John J. R. Macleod, M. B., Ch. B., D. P. H., Professor of Physiology, Western Reserve University, Cleveland; Late Demonstrator of Physiology, London Hospital. Cloth, pp. xi and 224, with 5 illustrations, \$3.00 net. Longmans, Green & Company, New York, 1913.

Tuberculin in Diagnosis and Treatment. By Francis Marion Pottenger, A. M., M. D., LL. D., Medical Director of the Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, Cal. Cloth 243 pages, 35 illustrations and 1 colored plate; \$3.00 net. C. V. Mosby Company, St. Louis, 1913.

Nervous and Mental Diseases. For students and Practicioners. By Charles S. Potts, M. D., Professor of Neurology in the Medico-Chirurgical College of Philadelphia, etc. Third edition, revised and enlarged. Cloth, 12mo, 610 pages, 141 engravings, 6 plates; \$2.75 net. Lea & Febiger, Philadelphia and New York, 1913.

Private Duty Nursing. By Katherine DeWitt, R. N., Assistant Editor of the American Journal of Nursing. Cloth, 244 pages. J. B. Lippincott Company, Philadelphia and London, 1913.

Digest of Laws and Regulations in Force in the United States Relating to the Possession, Use, Sale, and Manufacture of Poisons and Habit-Forming Drugs. By Martin I. Wilbert and Murray Galt Motter. Public Health Bulletin No. 56, Nov., 1912. Government Printing Office, Washington.

Hospital Relief for Rural Districts. By Ch. Wardwell Stiles, Professor of Zoology, Hygienic Laboratory, U. S. P. H. Service. Reprint No. 115 from Public Health Reports, Jan. 31, 1913. Government Printing Office, Washington.

A New Method of Grading Milk and Cream. By Wm. C. Woodward, Health Officer, District of Columbia. Reprint No. 117 from Public Health Reports, Feb. 21, 1913. Government Printing Office, Washington.

Snuff and Tobacco: Their Use by School Boys and Girls. By Ch. Wardell Stiles, Professor of Zoology, and S. B. Altman, Assistant, Hygienic Laboratory, U. S. P. H. Service. Reprint No. 118 from Public Health Reports, Feb 28, 1913. Government Printing Office, Washington.

The Rat: Its Habits and Their Relation to Anti plague Measures. By R. H. Creel, Passed Assistant Surgeon, U. S. P. H. Service. Reprint No. 119 from Public Health Reports, Feb. 28, 1913. Government Printing Office, Washington.

Measles. By W. C. Rucker, Assistant Surgeon General, U. S. P. H. Service. Supplement No. 1 to Public Health Reports, Jan. 24, 1913. Government Printing Office, Washington.

Indoor Tropics: The Injurious Effect of Overheated Dwellings, Schools, etc. By J. M. Eager, Surgeon, U. S. P. H. Service. Supplement No. 2 to Public Health Reports, Jan. 31, 1913. Government Printing Office, Washington.

Tuberculosis: Its Predisposing Causes. By F. C. Smith, Passed

Assistant Surgeon, U. S. P. H. Service. Supplement No. 3 to Public Health Reports, Feb. 7, 1913. Government Printing Office, Washington.

Fighting Trim: The Importance of Right Living. By J. M. Eager, Surgeon, U. S. P. H. Service. Supplement No. 5 to Public Health Reports, March 14, 1913. Government Printing Office, Washington.

Why the American Medical Association is Going Backward. By G. Frank Lydston, M. D., Chicago. The Riverton Press, Chicago.

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**Diagnostic Value of the Tuberculin Reaction.**—When a tuberculin test is given the reaction should vary considerably under different conditions of the patient and the disease, as follows:

1. A healed lesion should show no reaction to any of the tests after the lapse of sufficient time for the excessive amount of antibodies (particularly free-circulating antibodies) which were required for the defense of the body, and which were called forth by the stimulation of the toxins produced during the state of activity, have passed away. Until such time the reaction should gradually lessen in strength.

In this connection I do not wish to repeat my conception that free-circulating receptors in quantities beyond the slightest amounts, in patients who are not treated with tuberculin, mean that an active demand is made, or has been made immediately or shortly prior to the observation, for the protection of the organism against tubercle bacilli. When no extra demand is made, the receptors, for the most part, remain fixed to the cells; consequently a healed lesion should show no free receptors except for a period, the length of which we do not know, after healing has occurred.

2. A quiescent lesion should offer little opportunity for the formation of antibodies, because the specific stimulus is thrown into the circulation only in small amounts and infrequently, and therefore should show a weak reaction or no reaction, unless the test be given soon after toxins have escaped into the tissues; and if the patient is suffering from low vitality and is unable to respond in the production of antibodies, it might give no reaction at all and thus be erroneously interpreted as meaning no lesion or a healed one.

The cutaneous reaction in a partially quiescent lesion may be as marked as in a definitely active one, but it will take longer for the antibodies to gather at the point of inoculation in sufficient quantities to satisfy the tuberculin; hence the reaction is slower in manifesting itself. It may not reach its maximum until the second or third day.

3. A moderately active lesion in a person with good vitality should show a marked reaction to all tests; and in a person with low vitality, a moderate reaction, or it might be slight or even no reaction at all.

It is further characteristic of the cutaneous reaction in active lesions that it reaches its maximum early, usually before twenty-four hours from the inoculation. This is due to there being sufficient free receptors to satisfy the tuberculin quickly.

4. Advanced tuberculosis, whether slight or moderately active, may give no reaction or a marked reaction to all the tests, according to the vitality of the patient.

In patients of low vitality the tuberculin test is not so reliable, and we must not rely on the evidence adduced by it, especially if it is negative in character. In advanced tuberculosis the test is unreliable, but it is not necessary, as the diagnosis is easily made otherwise.

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In those instances which have been reported where some other disease is supposed to have reacted to tuberculin, the error is most probably on the side of the observer rather than on the part of the test. If we judge of the character of the reaction and the time of its occurrence, especially when dealing with the cutaneous test, we are able to determine to a certain extent whether or not the tuberculous process which causes the reaction is active or quiescent. This, of course, is one of the important things that we are attempting to do in our clinical dealings with tuberculosis. While it is not recognized by observers generally, yet my personal experience indicates that we have fairly accurate measure in the time and character of the reaction for basing an opinion of activity or quiescence.

There are many patients in whom it is important to make a diagnosis, who will give a negative reaction although tuberculosis is present. In individuals who are in fairly good physical condition, we can expect the tuberculin test to give reliable information. In those who are weakened, however, those who are cachectic, those who are suffering from an advanced tuberculous lesion, and those who are suffering from numerous infectious diseases, particularly measles and scarlet fever, our information is very unreliable. This makes it essential, if the test should be given during the course of any of the acute infectious diseases, for us to withhold our opinion and repeat the test again after the acute infection has passed away, and in those cases whose general health is undermined, we are forced to rely upon other measures for our diagnosis.

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It should be regarded as established that the tuberculin test does not tell where the tuberculous lesion is located; so, while it gives valuable information, it still requires the same common sense and judgment that have been required heretofore in order to locate the lesion and make the diagnosis accurate. Although the tuberculin tests are not perfect and often fall short of giving us the exact information which we greatly desire, I should not be at all surprised if the future would show us that our technic and observations have been far more erroneous than the tests themselves, and that what we now look upon as inaccuracies inherent in the tests will eventually prove to be largely due to our own limited vision and erroneous interpretations.—Pottenger: *Tuberculosis in Diagnosis and Treatment* (C. V. Mosby Company, St. Louis, 1913).

**Your Duty.**—Doctor, you have not done your duty if you have not invited your brother physician, who is not a member, to attend a meeting of your county society as your guest. Show and tell him what he is missing by not becoming affiliated with the county and state organization and then persuade him to file his application for membership with your secretary. You owe this duty to him, to your society and to yourself. Will you not make the effort to invite some non-member to your next meeting?—(*Jour. Mich. State Med. Soc.*)

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### Medical News

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**The Glasgow Lister Ward and Museum.**—As a memorial to the late Lord Lister, and as a means of perpetuating his memory in a way that it is hoped will prove both interesting and instructive to every member of the medical profession for all time to come, one of the wards in the Royal Infirmary, Glasgow, in which he worked out and first put into practice the principles of Antiseptic Surgery, is to be reserved and utilized in the following way. One part of the ward is to be refurnished as it was in his time with such objects as it may be possible to acquire; while the other part is to be made into a Museum for the exhibition of anything associated with the life and work of the great master. It is, therefore, asked that any who may have letters, pamphlets, books, or other objects of direct personal association with Lister and his work will either present or loan them to the Museum. Objects may be addressed to Professor John H. Teacher, M. D., Hon. Curator of the Museum, at the Royal Infirmary, Glasgow, Scotland. The names of all donors or senders of objects are to be affixed to the exhibits.

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**Sheppard and Enoch Pratt Hospital Anniversary.**—In connection with the meetings of the Congress of American Physicians in Washington, May 6 and 7, the Sheppard and Enoch Pratt Hospital at Towson, Md., is planning to celebrate the sixtieth anniversary of the granting of its charter.

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**The Chicago, Milwaukee & St. Paul Railway** has prepared a booklet, "New Towns and Business Opportunities," listing professional openings in the far and middle west.

**The New York Post-Graduate Medical School and Hospital** announces the opening of a department for treatment with radium emanation.

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**Farm Colony for Epileptics.**—A bill has been introduced in the Michigan legislature appropriating \$200,000 for a farm colony for epileptics.

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**State Health Legislation.**—Among the measures which have recently passed both houses of the Ohio legislature are the appropriation of \$20,000 for the work of the bureau of tuberculosis of the State Board of Health; the correction of the defect in the vital statistics law relating to the reporting of births; prohibiting the sale of habit forming drugs except on physician's prescription; prohibiting the misbranding of patent medicines.

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**The Federal Postoffice Department** has caused the arrest of G. W. Yates and W. S. Servis, operating under the name of "Dr. Hugh J. Linn," 314 Superior Ave., Cleveland, on a charge of using the mails to defraud.

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**Delegates to the IV International Congress on School Hygiene.**—Ohio delegates to this congress, which meets in Buffalo, Aug. 25-30, have been named as follows: W. S. King, Ashtabula; J. V. Winans, Madison; I. C. Kesier, Fletcher; W. O. Thompson, Columbus; J. H. J. Upham, Columbus; Weston A. Price, Cleveland; H. C. Brown, Columbus; T. A. McCann, Dayton; Charles A. L. Reed, Cincinnati; E. F. McCampbell, Columbus.

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**No Friedman Culture in Ohio.**—Because of the claim made by a few Ohio physicians that they had some of the Friedman avirulent tubercle bacillus culture for treatment of cases, the State Medical Board has issued a statement, based upon information received from Doctor Friedman, that no Ohio physician has any of the material.

**County Society Meetings.**—Richland county, at Mansfield, March 19. J. Lillian McBride discussed phylacogens and the Friedman cure; Edward Remy, the anatomy and physiology of the gall-bladder and ducts; and J. L. Stevens, the diseases of these structures.—Summit county, at Akron, April 1. The program was as follows: Cryptogenetic Septicemia, by F. C. Reed; Infection and Immunity, by C. E. Updegraff.—Columbiana county, at East Liverpool, April 8. A paper on hypertension was presented by M. J. Lichty, of Cleveland; and one on diphtheria by P. C. Hanford, of East Palestine.—Wayne county, at Wooster, April 10. C. A. Yocum presented a paper on anesthesia.

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**Local Contagious Diseases.**—Four cases of smallpox in one family were reported earlier in the month.—Cerebrospinal meningitis shows an increase over April of last year.

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**Changes in the City Hospital.**—J. D. McAfee, superintendent of the Cleveland City Hospital, has resigned. Howell Wright, superintendent of the Associated Charities, has been named in his stead. At a meeting held April 8, the City Hospital staff adopted resolutions commending Doctor McAfee.

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**Lakeside Hospital Medical Society.**—At the sixty-sixth regular meeting the program was as follows: Presentation of a Case of Simple Fracture of the Femur with Deep Infection, by S. L. Ledbetter; Presentation of a Case of Multiple Sclerosis, by D. B. Lowe; Presentation of a Case of Cerebrospinal Lues with Unusual Symptoms, by H. F. Gammon; Demonstration of Endothelial Tumors, by A. Graham.

## Deaths

**Albert Sweeney Weir**, of Cleveland; for twenty-five years disabled because of paralysis; died March 8, from rheumatism, aged 57.

**Charles F. Winton**, University of Tennessee, 1884; of Cincinnati; for many years chief surgeon of the Baltimore and Ohio Southwestern Railway; died March 13, aged 49.

**John T. McLaughlin**, Eclectic Medical Institute, Cincinnati, 1867; for more than thirty years a practitioner of Springfield; died March 13, from pneumonia, aged 69.

**Lucien W. McKinley**, Jefferson Medical College, 1880; of Columbus; died March 13, aged 55.

**James W. Norris**, Starling Medical College, Columbus, 1896; vice-president of the First National Bank of Woodfield; died at his home in that place, March 18, from tuberculosis, aged 43.

**Ray W. Morgan**, Medical College of Ohio, Cincinnati, 1900; of Clarksburg; died March 18, from pneumonia, aged 39.

**William H. Wise**, Toledo Medical College, 1885; until three years ago a resident of Toledo; died at Alvin, Texas, March 26, aged 60.

**Warren F. Reed**, University of Michigan, 1866; of Ottawa; a banker and former county auditor; died suddenly March 28.

**Henry Cundell Juler**, Kings College, Aberdeen, Scotland, 1847; F. R. C. S., 1853; formerly surgeon to the Aberdeen Royal Infirmary; a resident of Cincinnati since 1866; a graduate of the Cincinnati Law School in 1875; died April 3, from senile debility, aged 86.

**Charles Born**, University of Vienna, Austria, 1871; of Cincinnati; died April 3, aged 73.

**George Holmes**, Sheffield (England) School of Medicine, 1879; of Cleveland; died April 8, from cerebral hemorrhage.

**John H. Goss**, Cincinnati College of Medicine and Surgery, 1860; of Lancaster; died April 14, from diabetes, aged 75.

**Frank Graham**, Medical College of Ohio, Cincinnati, 1880; of Lisbon; died April 14, in the city hospital at Youngstown, following an operation for gastric ulcer, aged 63.

**Bryan B. Ashbrook**, Columbus (Ohio) Medical College, 1882; of Pataskala; died April 21, aged 56, being instantly killed when his automobile was struck by a train.

**Charles A. Offenbacher**, Cincinnati College of Medicine and Surgery, 1870; of St. Paris; died recently.

**Henry Swift Upson**, Columbia University in the city of New York, 1884; of Cleveland; member of the Academy of Medicine of Cleveland, of the Ohio State Medical Society, of the American Medical Association, and of the American Neurological Association; member of the board of directors of THE CLEVELAND MEDICAL JOURNAL; Senior Professor of Neurology in Western Reserve University and Senior Visiting Neurologist to the Lakeside Hospital; died at Rome, Italy, April 23, aged 54.

Surgery of the Brain and Spinal Cord, Based on Personal Experiences. By Prof. Fedor Krause, M. D., Geh. Medizinalrat, Dirigierender Arzt am Augusta Hospital zu Berlin. English adaptation by Dr. Max Thorek, Surgeon-in-Chief, American Hospital, Chicago, etc. Vol. II: Cloth, pp. xxviii and 537; with 94 figures in the text, 14 of which are colored; 27 colored figures and 4 halftone figures on 15 plates; \$7.00 net. Vol. III: Cloth, pp. xx and 382; with 42 figures (3 of which are colored) in the text, and 47 colored figures on 22 plates; \$7.00 net. Rebman Company, 1123 Broadway, New York, 1912.

The translation of Professor Krause's extensive monograph on the surgery of the brain and spinal cord will afford many an opportunity of profiting by the great experience and careful observations of the author, who has long devoted particular attention to neurological surgery, and is a recognized authority.

Vol. II of the present translation contains a chapter of over 200 pages on epilepsy, in which all the various forms are discussed. The results of operative treatment are very variable; some are quite satisfactory, others are failures. The rest of the volume is devoted to neoplasms of the brain. The detailed clinical histories are of much value, and one is impressed with the accurate observations of the author, who had associated with him, in many of the cases, Professor Oppenheim.

In Vol. III are considered intracranial suppurations and injuries, and the surgery of the spinal cord. The affections of the cord are accorded the same careful study as those of the brain as to symptomatology, diagnosis and operative measures, and are illustrated by numerous case histories. The illustrations are numerous and of the highest grade; particularly fine are the colored plates, which beautifully depict surgical and pathological conditions.

C. A. H.

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Infant Feeding. By Clifford G. Grulee, A. M., M. D., Assistant Professor of Pediatrics at Rush Medical College, Attending Pediatrician to Cook County Hospital. Octavo of 295 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$3.00 net.

This work is the result of a failure of the American pediatricians to give due recognition to the advances made within recent years in the subject of infant feeding and nutritional disturbances by the workers in Germany. Inasmuch as real advances have been made, this work meets a long-felt need. The work itself, however, is not what it might have been although it will be of decided value to practitioners, students, and especially to those teachers of infant feeding who have felt the need of reading matter that would enable their students to acquaint themselves with the opinions developed abroad.

To the reviewer its biggest fault is the fact that it is not uniformly complete and accurate. The stool cuts are very poor, but this is the fault of the publisher. Under our present existing conditions the work is to be decidedly recommended and undoubtedly the second edition will come much closer to the book for which many are still looking; namely, one that briefly, concisely, completely and clearly presents the subject in a manner that has been best accomplished in the German literature by Langstein-Meyer.

H. J. G.

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Diseases of the Genito-Urinary Organs and the Kidneys. By Robert H. Greene, M. D., Professor of Genito-Urinary Surgery at the Fordham University, New York; and Harlow Brooks, M. D., Assistant Professor of Clinical Medicine, University and Bellevue Medical College. Third Revised Edition. Octavo of 639 pages, 339 illustrations. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$5.00 net; Half Morocco, \$6.50 net.

The third edition of this standard work contains much new material.

The recent rapid advances in diagnostic methods in the urinary tract, made possible by the introduction of new instruments of precision and new means of obtaining information, require the revision of a urological text book published even a few years ago in order that it may be at all up-to-date. The authors have realized this fact, and in their preface they state that in introducing new material, they have attempted to recommend only such new methods and procedures as they believe to have been proven of definite value, or which they have personally investigated in their clinics.

In one respect the volume seems to the reviewer to be stronger than many other textbooks of its kind; considerable space is devoted to the so-called medical affections of the kidney. In this way the medical and surgical aspects of kidney disease receive a better balanced consideration than is usually found.

H. L. S.

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Compendium of Diseases of the Skin. Based on An Analysis of Thirty Thousand Consecutive Cases. With a Therapeutic Formulary. By L. Duncan Bulkley, A. M., M. D., Physician to the New York Skin and Cancer Hospital, etc. Fifth revised edition. Cloth, 8 vo, pp. xi and 286, \$2.00. Paul B. Hoeber, 69 East 59 Street, New York, 1912.

This is the fifth edition of the Manual of Diseases of the Skin with a Therapeutic Formulary by L. Duncan Bulkley, A. M., M. D. This little book of 286 pages is widely known and recognized as brief and concise, and yet of sufficient detail to be of practical value to the student and practitioner on the subject of diseases of the skin.

It covers briefly and concisely the anatomy and physiology of the skin, the symptomatology, etiology and treatment of the commoner skin diseases, and especially a formulary of value to the hurried practitioner. The volume contains all of the latest and best upon its subject, based upon an analysis of thirty thousand consecutive cases.

H. B. K.

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The Collected Works of Christian Fenger, M. D., (1840-1902). Edited by Ludvig Hektoen, M. D., Professor of Pathology at Rush Medical College. Two octavo volumes averaging 525 pages each, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Per set: Cloth, \$15.00 net; Half Morocco, \$18.00 net.

In these two volumes is republished nearly everything written by the late Professor Fenger. Coleman G. Buford has gotten together the material and Ludvig Hektoen has acted in the capacity of editor. There are in all about seventy-five articles, some of them being merely case reports, while others are lengthy dissertations upon important pathological and surgical subjects. There is also a brief autobiography, written for the Danish Government, upon the occasion of Fenger's receiving the order of Knight of the Dannebrog.

As a pioneer pathologist and scientific surgeon in Chicago, Fenger accomplished a remarkable work. His zeal for truth, his accurate and painstaking observations, his modesty and kindness of heart endeared him to his students, assistants and all who came in close contact with him, and did much to raise their ideals. Conversations with numerous physicians and surgeons in the northwest have impressed the reviewer with the great love and admiration in which Fenger was held, and the publication of his papers in book form, under the auspices of the Fenger Memorial Association, is a fitting and praiseworthy method of perpetuating his memory.

Among the more important contributions are those relating to the pathology and surgery of the biliary passages and particularly of the kidneys and ureter, in which subjects Fenger did pioneer work and upon which his fame largely rests.

C. A. H.

Sexual Impotence. By Victor G. Vecki, M. D., Consulting Genito-Urinary Surgeon to the Mount Zion Hospital, San Francisco. Fourth edition, enlarged. 12mo of 394 pages. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$2.25 net.

During the past few years there has been a growing inclination to a more rational consideration of the functions of the sexual organs and their pathology. In this book, which has now reached its fourth edition, a very full discussion is given of the causes of impotence in the male and the treatment.  
J. P.

### Acknowledgements

International Medical Monographs. Diabetes: Its Pathological Physiology. By John J. R. Macleod, M. B., Ch. B., D. P. H., Professor of Physiology, Western Reserve University, Cleveland; Late Demonstrator of Physiology, London Hospital. Cloth, pp. xi and 224, with 5 illustrations, \$3.00 net. Longmans, Green & Company, New York, 1913.

Tuberculin in Diagnosis and Treatment. By Francis Marion Pottenger, A. M., M. D., LL. D., Medical Director of the Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, Cal. Cloth 243 pages, 35 illustrations and 1 colored plate; \$3.00 net. C. V. Mosby Company, St. Louis, 1913.

Nervous and Mental Diseases. For students and Practitioners. By Charles S. Potts, M. D., Professor of Neurology in the Medico-Chirurgical College of Philadelphia, etc. Third edition, revised and enlarged. Cloth, 12mo, 610 pages, 141 engravings, 6 plates; \$2.75 net. Lea & Febiger, Philadelphia and New York, 1913.

Private Duty Nursing. By Katherine DeWitt, R. N., Assistant Editor of the American Journal of Nursing. Cloth, 244 pages. J. B. Lippincott Company, Philadelphia and London, 1913.

Digest of Laws and Regulations in Force in the United States Relating to the Possession, Use, Sale, and Manufacture of Poisons and Habit-Forming Drugs. By Martin I. Wilbert and Murray Galt Motter. Public Health Bulletin No. 56, Nov., 1912. Government Printing Office, Washington.

Hospital Relief for Rural Districts. By Ch. Wardwell Stiles, Professor of Zoology, Hygienic Laboratory, U. S. P. H. Service. Reprint No. 115 from Public Health Reports, Jan. 31, 1913. Government Printing Office, Washington.

A New Method of Grading Milk and Cream. By Wm. C. Woodward, Health Officer, District of Columbia. Reprint No. 117 from Public Health Reports, Feb. 21, 1913. Government Printing Office, Washington.

Snuff and Tobacco: Their Use by School Boys and Girls. By Ch. Wardwell Stiles, Professor of Zoology, and S. B. Altman, Assistant, Hygienic Laboratory, U. S. P. H. Service. Reprint No. 118 from Public Health Reports, Feb. 28, 1913. Government Printing Office, Washington.

The Rat: Its Habits and Their Relation to Antiplague Measures. By R. H. Creel, Passed Assistant Surgeon, U. S. P. H. Service. Reprint No. 119 from Public Health Reports, Feb. 28, 1913. Government Printing Office, Washington.

Measles. By W. C. Rucker, Assistant Surgeon General, U. S. P. H. Service. Supplement No. 1 to Public Health Reports, Jan. 24, 1913. Government Printing Office, Washington.

Indoor Tropics: The Injurious Effect of Overheated Dwellings, Schools, etc. By J. M. Eager, Surgeon, U. S. P. H. Service. Supplement No. 2 to Public Health Reports, Jan. 31, 1913. Government Printing Office, Washington.

Tuberculosis: Its Predisposing Causes. By F. C. Smith, Passed

Assistant Surgeon, U. S. P. H. Service. Supplement No. 3 to Public Health Reports, Feb. 7, 1913. Government Printing Office, Washington.

Fighting Trim: The Importance of Right Living. By J. M. Eager, Surgeon, U. S. P. H. Service. Supplement No. 5 to Public Health Reports, March 14, 1913. Government Printing Office, Washington.

Why the American Medical Association is Going Backward. By G. Frank Lydston, M. D., Chicago. The Riverton Press, Chicago.

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**Diagnostic Value of the Tuberculin Reaction.**—When a tuberculin test is given the reaction should vary considerably under different conditions of the patient and the disease, as follows:

1. A healed lesion should show no reaction to any of the tests after the lapse of sufficient time for the excessive amount of antibodies (particularly free-circulating antibodies) which were required for the defense of the body, and which were called forth by the stimulation of the toxins produced during the state of activity, have passed away. Until such time the reaction should gradually lessen in strength.

In this connection I do not wish to repeat my conception that free-circulating receptors in quantities beyond the slightest amounts, in patients who are not treated with tuberculin, mean that an active demand is made, or has been made immediately or shortly prior to the observation, for the protection of the organism against tubercle bacilli. When no extra demand is made, the receptors, for the most part, remain fixed to the cells; consequently a healed lesion should show no free receptors except for a period, the length of which we do not know, after healing has occurred.

2. A quiescent lesion should offer little opportunity for the formation of antibodies, because the specific stimulus is thrown into the circulation only in small amounts and infrequently, and therefore should show a weak reaction or no reaction, unless the test be given soon after toxins have escaped into the tissues; and if the patient is suffering from low vitality and is unable to respond in the production of antibodies, it might give no reaction at all and thus be erroneously interpreted as meaning no lesion or a healed one.

The cutaneous reaction in a partially quiescent lesion may be as marked as in a definitely active one, but it will take longer for the antibodies to gather at the point of inoculation in sufficient quantities to satisfy the tuberculin; hence the reaction is slower in manifesting itself. It may not reach its maximum until the second or third day.

3. A moderately active lesion in a person with good vitality should show a marked reaction to all tests; and in a person with low vitality, a moderate reaction, or it might be slight or even no reaction at all.

It is further characteristic of the cutaneous reaction in active lesions that it reaches its maximum early, usually before twenty-four hours from the inoculation. This is due to there being sufficient free receptors to satisfy the tuberculin quickly.

4. Advanced tuberculosis, whether slight or moderately active, may give no reaction or a marked reaction to all the tests, according to the vitality of the patient.

In patients of low vitality the tuberculin test is not so reliable, and we must not rely on the evidence adduced by it, especially if it is negative in character. In advanced tuberculosis the test is unreliable, but it is not necessary, as the diagnosis is easily made otherwise.

It can readily be seen that there is a good theoretical basis for the tests—particularly the cutaneous—being of value in differentiating active from quiescent lesions, and also in determining the reactivity of the patient.



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In those instances which have been reported where some other disease is supposed to have reacted to tuberculin, the error is most probably on the side of the observer rather than on the part of the test. If we judge of the character of the reaction and the time of its occurrence, especially when dealing with the cutaneous test, we are able to determine to a certain extent whether or not the tuberculous process which causes the reaction is active or quiescent. This, of course, is one of the important things that we are attempting to do in our clinical dealings with tuberculosis. While it is not recognized by observers generally, yet my personal experience indicates that we have fairly accurate measure in the time and character of the reaction for basing an opinion of activity or quiescence.

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**Phipps Psychiatric Clinic.**—The Henry Phipps Psychiatric Clinic, in connection with the Johns Hopkins University and Hospital, Baltimore, was formally opened with exercises held April 16, 17 and 18. The following addresses were delivered: Introduction, by W. H. Welch; The Clinic and the Community, by Stewart Paton; A Word of Appreciation, by H. D. Harlan, President of the Board of Trustees of the Johns Hopkins Hospital; Specialism in General Hospitals, by Sir Wm. Osler; The Sources and Direction of Psycho-Physical Energy, by Prof. W. McDougall; Autistic Thinking, by Prof. E. Bleuler; Personality and Psychosis, by Prof. A. Hoch; The Personal Factor in Association Reactions, by L. F. Wells; A Study of the Neuropathic Inheritance in Relation to Insanity, by F. W. Mott, F. R. S.; Pellagra, by Prof. O. Rossi; Psychic Derangements Associated with Ductless Gland Disorders, by Prof. H. Cushing; Primitive Mechanisms of Individual Adjustment, by Stewart Paton; *Demenz Probleme*, by Prof. Heilbronner; The Interrelation of the Biogenetic Psychoses, by E. Jones; The Prognostic Significance of the Biogenetic Psychoses, by G. H. Kirby; Anatomical Borderline between the so-called Syphilitic and Metasyphilitic Disorders, by C. B. Dunlap; Disorders Connected with Anemia, by Prof. A. M. Barrett; Closing Address, by Prof. A. Meyer.

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**The Glasgow Lister Ward and Museum.**—As a memorial to the late Lord Lister, and as a means of perpetuating his memory in a way that it is hoped will prove both interesting and instructive to every member of the medical profession for all time to come, one of the wards in the Royal Infirmary, Glasgow, in which he worked out and first put into practice the principles of Antiseptic Surgery, is to be reserved and utilized in the following way. One part of the ward is to be refurnished as it was in his time with such objects as it may be possible to acquire; while the other part is to be made into a Museum for the exhibition of anything associated with the life and work of the great master. It is, therefore, asked that any who may have letters, pamphlets, books, or other objects of direct personal association with Lister and his work will either present or loan them to the Museum. Objects may be addressed to Professor John H. Teacher, M. D., Hon. Curator of the Museum, at the Royal Infirmary, Glasgow, Scotland. The names of all donors or senders of objects are to be affixed to the exhibits.

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**Sheppard and Enoch Pratt Hospital Anniversary.**—In connection with the meetings of the Congress of American Physicians in Washington, May 6 and 7, the Sheppard and Enoch Pratt Hospital at Towson, Md., is planning to celebrate the sixtieth anniversary of the granting of its charter.

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**The Chicago, Milwaukee & St. Paul Railway** has prepared a booklet, "New Towns and Business Opportunities," listing professional openings in the far and middle west.

**The New York Post-Graduate Medical School and Hospital** announces the opening of a department for treatment with radium emanation.

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**Farm Colony for Epileptics.**—A bill has been introduced in the Michigan legislature appropriating \$200,000 for a farm colony for epileptics.

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**State Health Legislation.**—Among the measures which have recently passed both houses of the Ohio legislature are the appropriation of \$20,000 for the work of the bureau of tuberculosis of the State Board of Health; the correction of the defect in the vital statistics law relating to the reporting of births; prohibiting the sale of habit forming drugs except on physician's prescription; prohibiting the misbranding of patent medicines.

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**The Federal Postoffice Department** has caused the arrest of G. W. Yates and W. S. Servis, operating under the name of "Dr. Hugh J. Linn," 314 Superior Ave., Cleveland, on a charge of using the mails to defraud.

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**Delegates to the IV International Congress on School Hygiene.**—Ohio delegates to this congress, which meets in Buffalo, Aug. 25-30, have been named as follows: W. S. King, Ashtabula; J. V. Winans, Madison; I. C. Kesier, Fletcher; W. O. Thompson, Columbus; J. H. J. Upham, Columbus; Weston A. Price, Cleveland; H. C. Brown, Columbus; T. A. McCann, Dayton; Charles A. L. Reed, Cincinnati; E. F. McCampbell, Columbus.

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**No Friedman Culture in Ohio.**—Because of the claim made by a few Ohio physicians that they had some of the Friedman avirulent tubercle bacillus culture for treatment of cases, the State Medical Board has issued a statement, based upon information received from Doctor Friedman, that no Ohio physician has any of the material.

**County Society Meetings.**—Richland county, at Mansfield, March 19. J. Lillian McBride discussed phylacogens and the Friedman cure; Edward Remy, the anatomy and physiology of the gall-bladder and ducts; and J. L. Stevens, the diseases of these structures.—Summit county, at Akron, April 1. The program was as follows: Cryptogenetic Septicemia, by F. C. Reed; Infection and Immunity, by C. E. Updegraff.—Columbiana county, at East Liverpool, April 8. A paper on hypertension was presented by M. J. Lichty, of Cleveland; and one on diphtheria by P. C. Hanford, of East Palestine.—Wayne county, at Wooster, April 10. C. A. Yocum presented a paper on anesthesia.

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**Local Contagious Diseases.**—Four cases of smallpox in one family were reported earlier in the month.—Cerebrospinal meningitis shows an increase over April of last year.

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**Changes in the City Hospital.**—J. D. McAfee, superintendent of the Cleveland City Hospital, has resigned. Howell Wright, superintendent of the Associated Charities, has been named in his stead. At a meeting held April 8, the City Hospital staff adopted resolutions commending Doctor McAfee.

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**Lakeside Hospital Medical Society.**—At the sixty-sixth regular meeting the program was as follows: Presentation of a Case of Simple Fracture of the Femur with Deep Infection, by S. L. Ledbetter; Presentation of a Case of Multiple Sclerosis, by D. B. Lowe; Presentation of a Case of Cerebrospinal Lues with Unusual Symptoms, by H. F. Gammon; Demonstration of Endothelial Tumors, by A. Graham.

## Deaths

**Albert Sweeney Weir**, of Cleveland; for twenty-five years disabled because of paralysis; died March 8, from rheumatism, aged 57.

**Charles F. Winton**, University of Tennessee, 1884; of Cincinnati; for many years chief surgeon of the Baltimore and Ohio Southwestern Railway; died March 13, aged 49.

**John T. McLaughlin**, Eclectic Medical Institute, Cincinnati, 1867; for more than thirty years a practitioner of Springfield; died March 13, from pneumonia, aged 69.

**Lucien W. McKinley**, Jefferson Medical College, 1880; of Columbus; died March 13, aged 55.

**James W. Norris**, Starling Medical College, Columbus, 1896; vice-president of the First National Bank of Woodsfield; died at his home in that place, March 18, from tuberculosis, aged 43.

**Ray W. Morgan**, Medical College of Ohio, Cincinnati, 1900; of Clarksburg; died March 18, from pneumonia, aged 39.

**William H. Wise**, Toledo Medical College, 1885; until three years ago a resident of Toledo; died at Alvin, Texas, March 26, aged 60.

**Warren F. Reed**, University of Michigan, 1866; of Ottawa; a banker and former county auditor; died suddenly March 28.

**Henry Cundell Juler**, Kings College, Aberdeen, Scotland, 1847; F. R. C. S., 1853; formerly surgeon to the Aberdeen Royal Infirmary; a resident of Cincinnati since 1866; a graduate of the Cincinnati Law School in 1875; died April 3, from senile debility, aged 86.

**Charles Born**, University of Vienna, Austria, 1871; of Cincinnati; died April 3, aged 73.

**George Holmes**, Sheffield (England) School of Medicine, 1879; of Cleveland; died April 8, from cerebral hemorrhage.

**John H. Goss**, Cincinnati College of Medicine and Surgery, 1860; of Lancaster; died April 14, from diabetes, aged 75.

**Frank Graham**, Medical College of Ohio, Cincinnati, 1880; of Lisbon; died April 14, in the city hospital at Youngstown, following an operation for gastric ulcer, aged 63.

**Bryan B. Ashbrook**, Columbus (Ohio) Medical College, 1882; of Pataskala; died April 21, aged 56, being instantly killed when his automobile was struck by a train.

**Charles A. Offenbacher**, Cincinnati College of Medicine and Surgery, 1870; of St. Paris; died recently.

**Henry Swift Upson**, Columbia University in the city of New York, 1884; of Cleveland; member of the Academy of Medicine of Cleveland, of the Ohio State Medical Society, of the American Medical Association, and of the American Neurological Association; member of the board of directors of THE CLEVELAND MEDICAL JOURNAL; Senior Professor of Neurology in Western Reserve University and Senior Visiting Neurologist to the Lakeside Hospital; died at Rome, Italy, April 23, aged 54.

# The Cleveland Medical Journal

VOL. XII

MAY, 1913

No. 5

## Report of a Case of Total Congenital Absence of the Femur (Phocomelie)

By J. J. THOMAS, M. D., Cleveland

The subject of this report is a male infant born at the City Hospital, January 21, 1913. The mother had two healthy children previous to eleven years ago. She then had a miscarriage, and had not been pregnant subsequently until April, 1912. The mother appeared to be healthy and labor occurred at full term. The child presented by the breech and was born after an easy labor. The resident physician who delivered the child noticed at once the flabby condition of the upper leg and the shortening of the entire leg and supposed that in his manipulations to free the breech he had either fractured the femur or dislocated the hip.

To determine the nature of the supposed injury an X-ray was taken by Dr. Geo. F. Thomas with the result as shown in the photograph, revealing complete absence of the right femur.

A few days after birth the child showed signs of congenital syphilis. A Wassermann test of the mother's blood was then made and was quite positive. Under treatment the child's condition rapidly improved up to the time it left the hospital at two weeks of age, and at the present writing, April 16, 1913, is living and apparently healthy.

This anomaly appears from the literature to be extremely rare. Klaussner, in a small volume on malformations of the human extremities, published in 1900, refers to but twelve cases reported up to that time, and quotes Grisson to the effect that

the combination of normal distally placed bones with a defect of a centrally located bone is extremely rare. As shown in the photograph, our case shows this feature.

Hoffa, in his work on orthopedic surgery, 1905, refers to



A. Blenke's collection of sixty-six reported cases of defects of the lower extremity, in the majority of which there was merely absence of the patella.

Billroth is said to have been the first to describe a case of total congenital defect of the femur.

1110 *Euclid Avenue.*

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**Treatment of Syphilis**—1, Mercurial treatment of less than two years' duration seldom produces a negative Wassermann reaction. In most cases more than two years' treatment is necessary. 2, Treatment by salvarsan is more effectual but where the infection is of over six months' duration repeated administration is necessary. 3, Potassium iodid does not cure syphilis and is never sufficient treatment for a lesion whether secondary or tertiary.—Gordon Bates and G. S. Strathy in *The University of Toronto Medical Bulletin*, 1913, I, No. 3, p. 6.

## Fetal Abnormality Complicating Delivery

By D. S. HANSON, M. D., Cleveland.

Having quite recently attended an obstetric case in which teratological changes of a marked and unusual degree were present I thought a report of the same would be of interest. It was also of such a nature as to make delivery unusually difficult.

In a very brief review of the classification of causes of such deformities we find that of the germinal, embryonal and fetal periods, the second being the one in which most defects have their beginning. In the first, we have little knowledge of what happens in and to the human ovum from the time it is penetrated by the spermatozoon to the time we see it as a complex body as Peters found it to be at the age of five or six days.

The main causes of monstrosities and deformities as given by Balentine are briefly: maternal impressions, which have enjoyed more or less popularity since Jacob put the peeled white sticks before the cattle at the well with the view of breeding striped and spotted calves; pressure from without, as from tight corsets, abdominal tumors, etc.; and from within, as from the umbilical cord, bands of the amnion, amniotic adhesions, spontaneous amputations, etc., all of which are more common in twin and extrauterine cases. The changes which occur are developed by the disappearance of a part, by the persistence of a part that should have disappeared, or by the failure of parts to unite properly; or a part may be absent and replaced by another and parts that should have grown from a certain situation are in another and abnormal position. In the following case several of these morbid processes were present. For obvious reasons we have not mentioned syphilis and some other diseases often associated with these deformities, interesting though they are.

A midwife summoned me to see Mrs. C, age 32, II-para, her former child being three years of age, healthy and normal. Both parents are in vigorous health. The midwife said she did not know what the presenting part was; that it was wholly different than anything she had seen. Examination revealed the mother's vulva filled with coil after coil of the infant's intestines. After an anesthetic was given I did a podalic version. The foot came down easily, but after the leg was delivered to the knee, traction failed to produce any progress and although version

was complete the hand could be felt down in the pelvis. Traction on the leg as firm as dared be used finally succeeded and delivery was completed. Examination of the child revealed the cause of the difficulty in delivery. The right arm came from the right hip at a right angle, with no shoulder joint; the right thigh was rotated outward so that the posterior surface faced the left leg. The left arm was absent and there was no anterior abdominal wall. The placenta was without an umbilical cord and was attached to the liver and surrounding organs. There were thus no less than three examples of the above named kinds of developmental deformity.

3290 East 55th Street.

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**Laboratory Diagnosis of Glanders.**—The diagnosis of glanders by the complement-fixation test supplemented by the agglutination test on all negative sera is the quickest and most reliable test at the present time.—Glanders antigen prepared without shaking but filtered through a Berkefeld candle gives reliable results and yields a more stable product.—Normal horse serum varies widely in its agglutinating power, therefore a weak positive should be considered in conjunction with the complement-fixation test or with clinical symptoms.—Antigens and agglutination fluids should be prepared from several strains of *B. mallei*.—While a positive result from guinea-pig inoculation is conclusive evidence of the presence of glanders, failure of the pigs to develop lesions is not proof of its absence.—E. Marion Wade in *Jour. Infect. Dis.*

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**The Real Hope**—The one well-established fact in the midst of much that is obscure regarding tuberculosis is that it is the most curable of diseases. One reason why "treatments" flourish is that apparently complete cures are a familiar thing in the course of ordinary tuberculosis, and that nothing seems to start these seeming cures more than some great hope. It is now known that practically every child reaching the age of twelve has or has had some form of tuberculosis. How the disease is acquired is at present a complete mystery; but it is almost certainly acquired in infancy. It is equally obscure as to why ten or twenty years later these tuberculitic "hearths," as physicians call them, should flare up into a virulent attack. But what is known is that less than one out of ten die of this disease, therefore that nine out of ten tuberculosis cases get well. What is yet more hopeful is that probably within fifty years the death rate from tuberculosis has been cut in half. Provided it is caught in time, this world-wide plague presents relatively little danger. That is why every person up to the age of thirty ought to be carefully examined for tuberculosis at least once in six months. It seems fairly clear that it is in no sense a hereditary disease; and if, as many careful workers now believe, the main mode of contagion is from the mother or father to the infant after birth, complete control of tuberculosis would then become merely a matter of sanitary organization. The tests for tuberculosis are simple and clear; they ought to be taught in the public schools. Then we should have little need of sanatoria, and still less for German physicians with secret nostrums.—*Collier's*.



## Tumors of the Cerebellopontine Angle

By A. W. LUEKE, M. D., Cleveland

In 1889 Oppenheim described a case of tumor of the cerebellar fossa, involving those cranial nerves having their origin from the medulla and pons. This was the same class of tumor which Hartman described as acusticus tumors in 1902, and Henneberg and Koch as tumors of the cerebellopontine angle in 1903. The latter term gives us the location of the neoplasm.

These growths as a rule originate from the connective tissue of the eighth nerve, although occasionally from the fifth, seventh, ninth, tenth or eleventh cranial nerve. Orzecowski, who adopted the term "tumor of the lateral recessus," claimed they take their origin from the recessus medialis. Occasionally multiple tumors have been found, either on one side or involving both sides. These growths are generally of a mixed type, gliofibroma. Sometimes fibroma, sarcoma, neurofibroma and fibrosarcoma are encountered. Their relation to neurofibromatosis has been mentioned.

The disease generally starts with symptoms of the eighth nerve, either of the cochlear or vestibular division, as deafness, tinnitus aurium, vertigo, ataxia or vestibular attacks. Later symptoms of the fifth nerve develop, as paresthesia of the face and abolishment of the corneal reflex; then involvement of the facial nerve and vagus. Later on symptoms of pressure on the cerebellum, pons and medulla develop, as cerebellar ataxia, nystagmus, bulbar paralysis and paralysis of conjugate deviation. The general symptoms of brain pressure, headache, optic neuritis and vomiting, as a rule, occur early in the disease. The position of the tumor beneath the fourth ventricle causes pressure on the vein of Galen, which may lead to edema of the ventricle, therefore papillitis opticus, cephalgia and vomiting occur early. The headache is generally in the occipital region, but may be referred to the frontal region on the side of the tumor. Sometimes neuralgia and difference in percussion note are observed over the region of the tumor. The cerebellar ataxia, according to Stewart and Holmes, is due to lack of accurate cooperation and association between individual muscular contractions, not to impairment of muscular sense or position. The vision does not control or help the ataxia, which is often referred to as the

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*Presented before the Academy of Medicine of Cleveland Friday, February 21, 1913.*

drunken gait of cerebellar ataxia. The vertigo can be ascribed to the interference of the vestibular portion of the eighth nerve, the fibers running from the semicircular canals to Deiter's nucleus, and thence to the cortex of the middle lobe.

Acoustic tumors differ from intrapontine growths by the fact that in the latter choked disc is rarely present and paralysis of cranial nerves is more often bilateral. Tumors of the cerebellum give cerebellar symptoms early in the disease and do not involve the eighth nerve, the general symptoms occurring early.

The prognosis of these tumors, if left alone, is bad, the patient succumbing in one to eight years. During this time he suffers from constant symptoms of brain pressure, amaurosis, headache and vomiting.

On account of the slight symptoms during the earlier stages of this disease operative interference will rarely be undertaken until the opticus gives trouble. Since most of the patients seek operation after permanent changes have taken place in the optic and other nerves, total functional recovery seldom occurs. Out of eleven cases at the Eiselsberg clinic, two made nearly complete recovery. Sarcoma would naturally give a bad prognosis.

Although tumors of the cerebellum had been removed by McEwen, Terrier, Schede, the sceptical statement of Bergmann and Oppenheim as late as 1890, on the prognosis of tumor operations on the posterior fossa of the brain, may have delayed the operative intervention in these neoplasms.

It was in 1900 that Monakow demonstrated at autopsy how these tumors could be dissected from their seat and proposed that operative procedure would be feasible, considering the utterly hopeless prognosis of these cases. Hartman suggested this treatment somewhat later. Guldeman had already made two operative attempts in 1893, but his patients succumbed and he declared operative treatment a failure. Stieglitz, Gerster and Lilienfeld reported failure in 1897.

In 1903 Krause resected the eighth nerve, in a woman 63 years of age, at the internal auditory meatus. This intervention gave Horsley, Krause, Borchert and Garre fresh incentive to attack the acoustic tumors, Horsley reporting four cases with one recovery in 1904.

The operation is generally performed in two stages, the first stage being the opening of the skull; the second stage, opening of the dura, dislocating the cerebellum and removal of the tumor.

After an incision is made with the base downward and extending along both mastoid bones laterally and to the superior curved line above, a bone flap downward with the base at the foramen magnum can be made or the bone pieced away, exposing the lateral sinus above and laterally. Eiselsberg resects the sinus at times. This completes the first stage, after which the wound is carefully closed by suture. A fatal result sometimes occurs from shock or hemorrhage. In seven to ten days the second stage follows. After the incision is reopened and blood clots irrigated with normal saline, the dura is opened along the lower and lateral margin of the lateral sinus. The cerebellum is now gently retracted toward the median line. In marked protrusion of the cerebellum, Cushing advises preliminary lumbar puncture. Frazier takes off one-quarter to one-third of the lateral side of the cerebellum to make the tumor more accessible and the cerebellum easier of replacement. After displacing the cerebellum the tumor becomes visible along the posterior border of the petrous bone, and should be enucleated either by blunt dissection or, in cases of sarcoma, a curette is used. In enucleating the tumor serious injury to pons, medulla or cerebellum is often encountered, causing fatal shock, hemorrhage or meningitis. Frazier believes he obviates this by resecting the cerebellum as described above. After replacing the cerebellum the dura is sutured, Horsley approximating it loosely; then the outer coverings are closed. Eiselsberg reports ten cases of acusticus tumor from his clinic, of which six died; four cases were discharged as improved; two died after the first operative stage.

From the statistics of Borchert of forty-one cases, and those ten above of Eiselsberg, seven are to be excluded, four on account of inability to locate the tumor and in three cases the operation had to be suspended on account of poor condition of the patient. Of the forty-four remaining cases, twenty-nine died after the operation, six after the first stage, twenty-three after enucleation of the tumor, a mortality of 70 per cent. The most frequent cause of death is shock and paralysis of the heart and respiratory centers within forty-eight hours of the operation. Hemorrhage at operation resulted fatally in three cases. Of these forty-four cases, two were fully restored.

The patient to be demonstrated tonight is 54 years old, married, the father of four children; he has been healthy except for typhoid eight years ago. About this time he noticed difficulty in hearing with the right ear, also tinnitus, for which he was treated locally but unsuccessfully. This partial deafness increased to total deafness of the right ear. About January, 1912, the patient noticed that he walked like a drunken man, his neighbors calling attention to the fact that Mr. B. was again in-

toxicated. About this time his eyes failed, for which he consulted an ophthalmologist, who prescribed glasses, but his symptoms became worse. In March, 1912, the patient went to a hospital, where a decompression operation was done on the right side, after which sight and gait improved for a while, then grew worse. The patient consulted me on November 15, 1912.

The patient, whose mental condition was somewhat impaired, complained of his eyes, of headache and deafness. He had one convulsive attack on October 13.

Examination of the Nervous System: First nerve normal; second nerve, according to Dr. W. C. Tuckerman, who demonstrated the case to the Ophthalmological and Oto-Laryngological Section, marked choked disc and hemorrhage in the left disc. Third, fourth and sixth nerves intact, except rotary nystagmus. Fifth nerve, corneal reflex of right eye abolished. At the time of examination there was no paresthesia or paresis of the trigeminal nerve. Dr. Tuckerman had observed paresthesia in February, 1912. Seventh nerve, patient has slight habitual palsy of the left side; no involvement of the seventh nerve of right side. Eighth nerve: both right and left ear-drums normal, but the patient is unable to hear anything even with the aid of a trumpet on the right side; caloric reaction on the right side negative; in the test of the left ear the patient had no dizziness, but marked nystagmus was produced. Ninth, tenth, eleventh and twelfth nerves intact, but the patient complains of pains in the region of the upper distribution of the left spinal accessory. The patient complained of severe pains in the right occipital region in March, 1912.

The patient has a broad gait and has to stop often. There is no Romberg symptom or adiadochocinesia. Reflexes normal, Babinski phenomenon not present. Percussion over the occipital region gives a dull tympanic note on the right side.

Diagnosis: Cerebellopontine tumor of the right side.

Operation: First stage, November 20, 1912. An incision, flap downward, was made, extending laterally from the mastoids to the superior curved line above. Then a trephine opening, from which a window was made in the posterior fossa of both sides, exposing the lateral sinus above and the mastoid cells laterally. After exposing the dura the right cerebellum was more prominent than the left side. Hemorrhage was never a factor during the operation. After sewing the wound the first stage of the operation was completed. The patient made an uneventful recovery, except for some difficulty in swallowing during the first four or five days.

Second Stage of Operation: After removing the stitches the scalp was painted with iodine. The incision was reopened and the parts washed with normal saline. An incision through the dura was made along the lateral sinus over the median line through the occipital sinus. On manipulating the brain toward the median line a cystic gathering of about half an ounce was encountered. This was probably encapsulated meningeal fluid due to long continued irritation. This was opened. Then the right cerebellum was more completely dislocated from the fossa and the tumor was brought to view on the anterior lateral wall of the cerebellum, between the cerebellum and os petrosum. The tumor was enveloped by a fine membrane with minute vessels. After bluntly dissecting the tumor from its surroundings it was enucleated from its base by a spoon curette. It was about three-quarters of an inch in diameter. Removal of the tumor was followed by sewing of the dura, muscle and skin. The dura could not be brought entirely together, on account of pressure, so a small drain was left in the wound for a few days.

The patient was discharged from the hospital in three weeks, having had no reaction of any kind after operation except slight facial palsy, which has nearly cleared up. He has also returned to work. Doctor Tuckerman reports the eyes as greatly improved, vision being nearly normal. The hernia cerebri has nearly disappeared. Examination of the tumor by Dr. O. T. Schultz showed it to be a fibroma.

## The Thymus and the Other Ductless Glands

By ROSWELL PARK, M. D., LL. D., Buffalo, N. Y.

My intent on the present occasion is to briefly invite your attention to certain aspects of the mysterious interrelations and synergies which obtain between the ductless glands, or those which apparently elaborate the internal secretions, as they are now generally called, and certain clinical manifestations which present themselves to every practitioner, but which seem naturally to gravitate toward the surgeon in hope of relief.

Even when briefly considered this subject is essentially too extensive to permit any, even semicomplete epitome in the time at disposal, for which reason I shall limit myself largely to the subject of the thymus, and the consequences of perverted thymus secretions.

Nevertheless, in opening such a discussion it may be well to begin with a few general considerations that seem to be unavoidable. If we catalogue the various organs of internal secretion the list would appear about as follows: The pituitary, anterior and posterior; the pineal body; the thyroid; the parathyroids; the thymus; the adrenals; the pancreas; the genital glands, including the testes; the ovaries; and the prostate. To these must be added the carotid body; Luschka's body (the lower terminal hypophysis); and the balance of the chromaffin system not already comprised within the above list.

A few general statements can be made which hold good with all or nearly all of these. Each ductless gland must be regarded as having its own role and its own purpose in the general economy; nevertheless, conditions which it is not possible here to discuss make difficult any exact assignment of the purpose of each, or any exact description of the physiological properties of their secretions. Moreover, when disturbed each will vary according as it overdoes or underdoes its work; in other words, the clinical symptoms associated with too great or too little activity present quite different pictures in proportion to their distinctness. We are gradually arriving at a point where it is possible to classify fairly accurately the functions of most of these, especially of the larger, although the groups last mentioned, which

present the greatest difficulties, form almost an exception to this statement. While typical cases are far less common than the atypical or the mixed, there yet exist fairly characteristic syndromes for derangements of each, which may be spoken of as evidences of hypo- or hyper-activity.

At the same time it is incontestable that numerous overlappings of symptoms occur, by which our clinical pictures are the more often confused and made indistinct. It is also known, though not to what extent, that vicariation or substitution of function is possible, while more than all else do we need to know how far this can be carried. While this is most fortunate for the individual it is unfortunate for the student of the subject.

Apparently all the ductless glands are influenced by so-called "epochal periods" or those of unusual activity. In the main these are indicated by the terms adolescence, puberty and pregnancy; nevertheless, early childhood or infancy, and the other extreme, senility, must not be disregarded. Another matter of the greatest importance is the extent to which toxemias of extraneous origin may affect these secretions or, *vice versa*, may be produced by them. In fact, every notable change in the internal secretions must be regarded as constituting, in a certain sense, a toxemia. In this respect a vicious circle is easy of production. An extraneous poison may so affect a ductless gland that, its own secretion being altered, it shall profoundly disturb the balance of the economy.

The thymus belongs to a class by itself in that it practically completely disappears within a comparatively few months after birth. Whether this is to be interpreted as meaning that its peculiar secretion is no longer required, or whether its function is assumed by some other gland, is yet to be determined.

The pituitary differs from all the other glands in that it has a dual construction. In fact, it would be better to describe its two portions under entirely different names, so distinct appear to be both their construction and their function. Its anterior portion is essentially epithelial in structure, emptying its hormone or secretion into the blood-vascular circulation, and probably into the lymph circulation as well, by means of the sinusoidal veins which freely traverse it. Thus, in general, it has the rather characteristic structure of a ductless gland. The pos-

terior lobe contains numerous neural elements, and its interior spaces empty into the cerebrospinal canal. Thus the former is an organ of internal secretion, the other almost of external secretion.

The same distinctness is observable in the action of the secretions of these two bodies. That of the anterior part appears to have largely to do with metabolism, especially with the growth of the skeletal system, and hyperactivity produces those distinctive changes which we sum up under the term acromegaly; in connection with which we have equally marked changes in the skin, with hypertrichosis. Contrast these with the functions of the posterior lobe, which appears to preside over the assimilation of carbohydrates, producing increased sugar tolerance and marked adiposity, along with dry skin, hypotrichosis, sexual dystrophy and atrophy, psychic disturbances, and subnormal temperature and pulse.

The consequences of disturbed thyroïdal activity are the best known of all of this group of phenomena, associated as they are with exophthalmic goitre, these constituting the picture of hyperactivity; while the consequences of hypoactivity are seen in myxedema, cretinism and the like. While the thyroid has been supposed to have more or less to do with the growth of the osseous system, or the nutrition of the bones, it now appears much more likely that changes in this regard must be ascribed rather to the anterior hypophysis or to the thymus.

The little parathyroids have assumed an immense importance since their relation to tetany has been generally recognized.

With regard to the adrenals, I need scarcely here to speak, save to remind you that while blood-pressure seems to be largely under their control there is still reason for assuming that they themselves are more or less under the influence of the thyroid. That such profound changes as are met with in Addison's disease can originate within these little bodies, would indicate that they have a most decided influence, though in some unknown way, upon body chemistry and metabolism.

Regarding the pancreas we need, perhaps, only to say here that its function is at least duplex, and that while it furnishes an external secretion of the greatest importance in the process of digestion, its islands appear to have a widely different activity, in that by the hormones or secretions which they pro-

duce diabetes of a certain type is produced. It is not possible, then, to omit the pancreas from present consideration.

The genital glands, through their recognized and conspicuous reproductive functions, certainly do influence general metabolism and function of the skin, as is shown by the disastrous consequences of their removal, seen in eunuchism in its various forms, including even the conspicuous exterior changes that characterize these castrated individuals. It has seemed to me also that the prostate could hardly be excluded from this consideration, although it is so very seldom removed during the more active years of life that we lack the clinical evidence met with in most of the other organs.

Of those tiny structures, the so-called cartoid gland and Luschka's gland, we know in effect nothing, save that they are occasionally the site of tumors, usually of malignant type; and yet that they have distinct functions, or have had, must follow from both their existence and their persistence. I believe others have anticipated me in considering Luschka's "gland" as a sort of hypophysis, placed at the inferior end of the series of neural glands, though I confess that if challenged I should find it difficult to sustain their priority. The balance of the chromaffin system scattered throughout the body, is a still more difficult field of study, in fact one upon which no light can at present be shed, unless it be in connection with the tonsils. The tonsils and the whole ring of adenoid tissue which surrounds the nasopharynx offer a fertile source of disturbing elements, and the disturbances which are to be credited not alone to hypertrophy or the mechanical results of their enlargements, should not be confused with the physiological results of the perverted secretion or material products which pass from them into the lymphatic circulation.

There remains to be considered the thymus, which I have kept until the last because it is especially to it that I would now draw your attention.

The very derivation of the word "thymus" is in doubt. The Greek "thymus" means mind, or heart in the sentimental sense, and means also our plant thyme. It has also other derivations which apparently have no bearing upon our present use of it, so that little, if any light is shed upon the views entertained by the earlier anatomists. I say earlier rather than earliest, because Vesalius seems to have been the first to recognize it,



about 1550, regarding it as a sort of cushion for the support of the large vascular trunks. He noted also its similarity with the pancreas, a resemblance to which for a long time considerable significance was attached.

Phylogenetically it is found in all except the very lowest vertebrates. Even in amphioxus is seen an organ, with canals, that represents the thymus. Fishes above the elasmobranchs possess it. In the selachians it is quite evident, lying just beneath the skin. It may be claimed then that it is represented, or that its equivalent is present, in practically all the vertebrates. In reptiles and snakes it is also found, while in birds its presence was first noticed by Meckel.

The importance which we now attach to it dates back to about 1831, to the studies of Arnold and Hammar, and to those of Koelliker in 1852. Ontogenetically it appears to be an offshoot of the same embryonic structure from which the thyroid is produced. Normally it develops from the third branchial cleft, just below the thyroid, but just above certain lower "anlage" of the thyroid which are occasionally found. Recently even a *parathymus* has been described. As it grows the lower end seems to be attached to the chest wall, while the cephalic end recedes or is detached from the growing thyroid. It displays the same variations from standard type as does the thyroid, and the formation of congenital thymic cervical fistulae is to be explained by irregularities of this sort, and to the persistence of that thymopharyngeal duct which at one period seems to be a part of the thyreoglossal duct. When such fistulae are present the thyroid is usually abnormally developed.

The normal involution of the thymus, which should be complete when the child is about thirty months old, is sometimes described as *accidental*, i. e., when it takes place early, as it may, or as one of the effects of starvation. In experiments in young animals a notable decrease in the thymus is the result of hunger and fatigue. Its normal involution in contrast to the accidental may be described as *periodic*.

The limits of this paper are such that I can scarcely even allude to many of the syndromes associated with thymic abnormalities and disease, such, for instance, as laryngismus stridulus, thymic asthma, the status lymphaticus, etc. Neither can I here more than mention those evident disturbances included in ante-

natal blood cysts, or the congenital tumors, nor the hypertrophies which produce pressure effects and even kill by occlusion of the trachea. I will only stop to mention one instance, which I can never forget, though it occurred over twenty years ago or more, viz: that of a little child with an acute hypertrophy, which apparently came on within three or four days, and corresponded in large measure to an acute strumitis. This child was hurried to my clinic, appearing to be almost suffocating. It was before the days of intubation, and in the effort to afford relief the child died upon the table. The difficulty of giving such relief may be appreciated if I mention only a short, chubby neck, a mass overlying the trachea, a struggling child, and the difficulty of administering an anesthetic. Here relief was too long delayed and the inevitable occurred. Such an acute type of this form of trouble I have not yet seen suitably described.

It is now particularly with regard to the effect of the peculiar secretion of the thymus upon the growing skeleton that I desire to call attention. The knowledge which we have at present regarding skeletal growth permits a recognition of the fact that it is influenced largely both by the pituitary and by the thymus. Hyperactivity of the anterior pituitary leads to skeletal overgrowth, whose most distinctive features are described as acromegaly, leontiasis, etc. Underactivity of this same body does not produce any contrasting features so far as known, but changes of the opposite character certainly are produced by hypoactivity of the thymus, and these have been carefully studied on a large number of experimental animals by Klose and others, Klose's contributions to the subject being memorable and most valuable. Again, the lesions of pituitary origin usually occur late in life rather than early, whereas those of thymic origin pertain to the early period, and are associated with so much that is spoken of as rickets that the influence of the thymus is something never to be disregarded. To it also we must ascribe those conditions spoken of as achondroplasia, dwarfing, *nainism*, and the like. These which have hitherto been regarded as probably due to pituitary underactivity are now to be viewed as evidences of underactivity on the part of the thymus.

Klose and his associates have carried out extensive investigations regarding the effects of thymectomy, with results which may be epitomized as follows: The entire bony skeleton shows

evidence of tardy development, the epiphyseal cartilages in whole or in part failing to ossify, with consequent restriction of growth in their length. These animals show, for instance, a difference of from 20 to 25 per cent in this respect as compared with controls, or they reveal ossification proceeding only from scattered points. It is largely, then, in this way that dwarfing or nanism is produced. As a practical point, just here, we may see very plain indication for opotherapy in these conditions, either by feeding thymus extracts or more particularly transplanting the thymus body. Skiagrams of these animals show such abnormalities, for instance, as complete failure in ossification of the first pair of ribs, with similar defects in lesser degree in the other ribs. This is seen also in the tubercle of the tibia and its expanded head, although the bone is apparently enlarged at these points; this apparent enlargement being due to the disproportion thus caused. The sternum also seems to be actually widened, and perhaps in its softened condition it may really be broadened by the tugging of the ribs. In such ways are produced most of these peculiarities which give to the rickety chest its characteristic appearance, while thus, by the combined action of the diaphragm with the thoracic and abdominal muscles, the entire truncal skeleton may be distorted. Similar effects are similarly produced in the skull, the pelvis and the limbs.

These bones, moreover, are so lacking in mineral elements, and consequently so soft, that they may be actually cut with scissors. Under these conditions it may easily be appreciated how curvatures of the long bones are produced as the combined effect of weight bearing and muscle pull.

When cachexia follows, as follow it will in due time, this flexibility gives away to fragility and friability, and these bones become brittle. This condition thus produced should not be confused with that often seen in cases of dementia, though it be related to it.

Another notable peculiarity is that at the breaking points there will usually be found small cysts, even as large as hazel nuts, in or near the marrow cavity, the latter being relatively large and filled with red marrow, while the cortex is abnormally thin. At the great trochanter, and in the head of the tibia, it may be noted that the epiphyses remain such and are still cartilaginous at a period when bone should have appeared. At such times the shafts may be brittle, even as dry wood. All this takes

place in early life and is to be contrasted with the osteoporosis, osteomalacia or osteopsathyrosis of adult life or old age.

In fact, the results of thymectomy have been compared to those observed by veterinarians after severe operations on domestic animals, especially those in the central portion of the abdomen and around the pancreas, which have been termed "malacic" by Pawlow, Fischer and Looser, which nevertheless come on rather slowly. Something resembling this has been noted in the experiences of abdominal surgeons. Obviously these bespeak the intricate relationship between the organs producing internal secretions and the nutrition of the osseous system. Unfortunately these lesions show little or no tendency to spontaneous improvement, but rather the contrary. Klose is decidedly of the opinion that there is a distinctive type of thymectogenic bone lesion, not to be explained by the agency of the central nervous system nor by the vasomotor apparatus; all of which would imply a marked distinction between rickets and the other forms of bone fragility, the former comprising rather a flexibility due to malnutrition in early life, the latter being a brittleness whose prime cause only begins to operate later in life.

Just here may be raised the interesting question as to what extent does the osteomalacia of pregnancy depend on perverted secretion of the genital glands? Certainly nothing analogous to it is known among males.

Moussou and Charrin produced osteomalacia in grown animals by feeding them with marrow from the rachitic "ferkel." Morpourogo observed an osteomalacic condition among adult rats which had been confined in cages, which he was inclined to consider as the result of a diplococcus infection, but when he fed fragments of their own tissue to newborn rats the latter developed epiphyseal lesions identical with those of rickets.

Speaking briefly, and but for a moment, of this condition of rickets, Sir Bland Sutton, who used to be our best zoöpathologist, has described three types of rickets: (1), In childhood it affects the bones, especially of the skull, thorax and extremities. (2), At puberty the axial skeleton. (3) In adults occurs fragility of bones, which show large marrow cavities containing a very soft marrow.

Of these three types the last is by all means the most rare. And Lataste has described in rickets not only the softened bones of the young, with the various changes therein produced

by muscle pull, but certain other changes peculiar to the late adult stage, including paraplegias, spontaneous fractures, etc., the latter having in animals often a fatal termination. Their skulls become soft "even as gelatin," because of the total disappearance of the salts. Not alone animals, but sometimes even women, die of this disease. He considers it as practically one and the same basic condition, which may be called rachitis in the young, and osteomalacia in the elderly. At all events its three principal phases correspond pretty closely to the three periods of life, all of which has been further emphasized and corroborated by Meslay, Collez, Pezzon, Siegert and others. Here it would seem that no one ductless gland is solely at fault, though the majority of investigators quite incline to the view that it is the thyroid which is primarily at fault; thus the entire subject needs much further elucidation.

Killian, over fifty years ago, contrasted "osteomalacia fracturosa" with "osteomalacia cercea," but such distinction can hardly be maintained, not at least in animals like the dog. He also describes certain features attributable to perverted nerve (trophic?) influence, e. g., exaggerated patellar reflex, increased muscle tonus, and fibrillary muscle twitchings. Looser contends that these symptoms practically all belong to one group, having many features in common, especially delay in bone growth, and defective bone construction because of tardy and deficient petrification, especially at the epiphyseal borders, with corresponding delay in the proper elaboration of the bone marrow.

Mention of another type of bone and joint disease may not be omitted in this consideration. It comprises the clinically allied forms of rheumatoid arthritis, hypertrophic osteoarthritis, and ostitis deformans. Whether the arthropathies of tabes, and the like, are to be included remains to be discovered. That the pathogeny of these affections has been so variously explained—and so unsatisfactorily—simply demonstrates our difficulties and our doubts. But that they are in some way the result of perverted internal secretions no longer admits of doubt. The action of these morbid products may be local, or they may operate by first irritating the nerves which supply these parts; far more likely the former. Granting that these symptoms constitute expressions of a toxemia, is not this as likely to result from an

altered internal secretion as from any other source of poisoning from within?

Experimental physiology and accurate chemical determinations alone can afford the light we so greatly need.

The limits of this paper preclude all possibility of more than mentioning other almost equally important features included in any complete discussion of the thymus activities. Consideration of its relation to the thyroid in exophthalmic goitre, for instance, fills twenty-five pages or more in Klose's latest monograph (*Chirurgie der Thymusdrüse: Neue deutsche Chirurgie, Bd. 3, 1912*). In it he claims that the pathological changes in the blood that are so conspicuous in most of the advanced cases of Grave's disease are to be ascribed to the thymus, and that if we are to achieve a "hematological recovery" as well as recovery in the grosser respects, we must concern ourselves with the removal of thymus remains as well as with the ordinary thyroidectomy, since the thymus is often notably persistent or enlarged, and since "dysthymism" is a conspicuously disturbing factor. Even in ordinary struma the thymus is often greatly enlarged.

In February of this year has appeared a memorable monograph by Hofstatter (*Unser Wissen über die sekundären Geschlechtscharaktere: Centralbl. für die Grenzgebiete der Med. und Chir., Feb., 1913, p. 420*), with a bibliography of 2324 titles, in which he gives much attention to the influence of the thymus (as well as of the other ductless glands) upon the sexual characteristics, and sheds much light upon an abundance of these relationships which will astonish those not familiar with them.

For instance, the relation which the thymus bears to the amount and character of the hair: Hypertrichosis lanuginosa, where the body is covered with soft down (lanugo) or its replacement—occasionally—by hair which is almost bristly. The so-called "dog-men" or "rabbit-men" belong to this category. Accompanying these abnormalities are frequently seen others, or defects in dentition, both hair and teeth being epithelial products; while congenital defects are often seen in the reproductive organs, such as uterus infantilis, uterus septus, uterus bicornis, rudimentary mammae, etc. In this casual mention the connection between the ovaries and the thyroid must not be neglected. Some careful students of the subject attribute most of the congenital departures from the normal in the hair and in the minute glands of the skin (sebaceous, sweat) to perverted thyroid

secretion, but surely the thymus cannot be omitted in this consideration. It is well known that the thymus lingers long after very early castration. This was experimentally demonstrated, in 1898, by Calzolari. Even later, after its normal subsidence, it appears to undergo a revivescence after castration. Curiously the atrophy produced by Roentgen rays seems to have the same effect as removal, as has been demonstrated by Gellin.

Conversely thymectomy is often followed by hypertrophy of the external genitals. In 1906 Redlich published a case of "gigantismus infantilis," noted in a man of thirty-one. Up to his twentieth year he developed normally; he then had some pulmonary trouble which seemed to inhibit all further development; from that time he appeared as would a eunuch; his epiphyses were ununited. He presented the picture of gigantism in his skeleton figure, while in other respects he remained as a boy of fifteen; corresponding to the type previously described by Brissaud and Launois in 1904.

And now, in conclusion, to the general practitioner the all important question will be—what practical importance has this discussion regarding the function and behavior of the thymus? The subject is still in its infancy; the effort must first be made to determine and assign to each of these ductless glands its peculiar function and the role which it plays in the animal economy. Experimentation and accurate observation alone can yield the answer, which will be the sooner forthcoming the more completely we can clear up complications by means of carefully conducted autopsies. In truth, the functions of these organs of internal secretion so merge into each other that it is as yet impossible to make satisfactory distinctions. We have scarcely yet really entered this field, we are merely gazing into its enclosure. There is scarcely a subject in pathology of greater present importance than this, and none which more needs the light shed by animal experimentation. Of all the principal organs belonging to this category the thymus is today perhaps the least understood, as it has been the most neglected.

Probably in no list of associated morbid conditions can more be accomplished by a rational and well directed opotherapy than in this. The topic before us has to do, for example, with that altogether too large class of defective children, presenting abnormal departures alike in mentality and physique, which urgently call for relief, from the eugenic as well as from the ordinary

standards. Whether to operate or to abstain is a most important question. If it be decided in favor of the latter then will come up the question of the internal use of properly selected extracts, or then may still come up the matter of operative transplantation of that particular gland which, viewed in this light, seems to be at fault. There is no doubt but that dwarfism, rickets, and the allied deformities need to be treated by animal extracts; whether in these particular instances they shall be made from the pituitary, the thyroid, or the thymus, is an exceedingly difficult problem. While this short paper may afford no assistance in this regard it is hoped that it may, at least, direct attention and serve to awaken a vivid interest among those who have hitherto quite disregarded its importance.

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**“Guaranteed Under the Food and Drugs Act:”**—Much misunderstanding exists regarding the working of the Food and Drugs Act and the meaning of the legend: “Guaranteed under the Food and Drugs Act.” This act (“the pure food law”), does not require the manufacturers of “patent medicines” to make public the composition of their nostrums. It merely demands that if the medicine contains any one of eleven drugs, or the derivatives of these drugs, the quantity or proportion of such drugs must be given on the label. These eleven drugs are alcohol, morphin, opium, cocain, heroin, alpha or beta-eucain, chloroform, cannabis indica, chloral hydrate and acetanilid. The nostrum may contain any number of the hundreds, possibly thousands, of other drugs known and the public be none the wiser. It may contain some of the most dangerous poisons known to science, such as strychnin, arsenic, prussic acid and aconite, and no warning needs to be given of their presence. So far as the clause “Guaranteed under the Food and Drugs Act” is concerned, it means only that the manufacturer has applied to Washington for a serial number. This application is entirely optional and in making it he is not required to give any information about his product. A “patent medicine” may be, and in many cases has been, proved to be a fraudulent product, that is, misbranded or adulterated within the meaning of the act. These facts are not considered in the issuance by the government of a serial number. The only value of the guarantee is the protection it gives to the individual retailers of the product should it be declared misbranded or adulterated under the act. In other words, it throws the responsibility for misbranding or adulteration back on the manufacturer and not the retailer.

The widespread misinterpretation of the guarantee clause has been brought about largely by unscrupulous manufacturers who try to make the public believe that the government guarantees the purity or value of the products on whose labels the guarantee clause appears. When the Canadians enacted a law controlling the sale of “patent medicines”—which they did about three years before the passage of our own law—they recognized the abuse of the guarantee clause and specifically prohibited by law the use of the term “guaranteed.” They also made it illegal for any manufacturer to indicate that the certificate of registration (corresponding to the “serial number” in this country) in any way implied a recommendation or guarantee on the part of the government as to the merits of the article. This prohibition applies not only to statements on the label but to any published advertisements. Our national Food and Drugs Act needs modifying in this regard—*J. A. M. A.*



## Roentgen Ray Treatment of Thymus Hypertrophy

By C. W. WYCKOFF, M. D., Cleveland

In the report of these cases of so-called thymic asthma treated with X-ray, the attention is again called to the efficiency of this therapeutic agent in such cases. Since 1907, when Friedlander first reported a case of thymus hypertrophy successfully treated with the Roentgen ray, there have been some fifteen similar cases reported and a large amount of experimental work done. It was the result of Heinicke's work in 1903, in which he found the Roentgen ray to destroy lymphoid tissue, which prompted Friedlander to adopt the same procedure with success for hypertrophied thymus tissue. After citing these cases I will give the salient points in the diagnosis of thymus hypertrophy with pressure symptoms and the experimental and clinical results of other investigators as to the effect of the Roentgen ray in this condition, also the effect of thymectomy.

Case I.: Sadie G. was admitted to the Sick Babies' Dispensary by her mother at the age of seven months, in December, 1911, with the complaint of not being able to breathe well since three months old. History showed the condition to have been constant, becoming worse at times. The babe would have attacks of coughing, becoming very cyanotic, and having a loud inspiratory wheeze. Whenever the child was placed on her back the wheezing was more pronounced than when in the upright position. The cry of the child was normal, showing the larynx to be uninvolved. No history of spasmophilic diathesis.

Physical Examination: Well developed and well nourished; weight, 7,700 grams. Moderate general enlargement of lymph glands. Moderately large tonsils, no adenoids to speak of. Lungs normal, except for a few coarse mucous rales posteriorly. Heart normal. Percussion shows no thymus enlargement. Abdomen shows no palpable spleen. There are no signs of spasmophilia. Von Pirquet reaction negative. Hemoglobin, 90 per cent. The blood picture showed 34 per cent lymphocytes. The child gave no history of fever, nor was there any elevation of temperature whenever the child was seen. The radiograph showed an enlarged shadow in the thymus area.

Diagnosis: Enlarged thymus.

Treatment: Eight Roentgen ray exposures over a period of ten weeks were given. There was slow but steady improvement of symptoms until the sixth exposure, when the child began to improve very rapidly. After the eighth exposure all the symptoms disappeared except a slight occasional cough. The child as seen March 1, 1913, at the age of twenty-two months, seemed perfectly normal. The mother said there had been no return of the symptoms since the eighth exposure. The child was walking and showed no signs of rickets.

Case II: George H., aged seventeen months when first brought to the Dispensary, March 1, 1912, and weighed 7,680 grams. According to the history, the child had wheezed and coughed ever since birth. Wheez-

ing was always worse at night or any time that the child laid on its back. Occasional attacks of coughing would come, during which the child would become very blue.

Physical examination shows a fairly well developed, pale, rather poorly nourished babe. Muscles very flabby. All the superficial lymph glands considerably enlarged. Tonsils and adenoids considerably hypertrophied. Lungs show no areas of impaired resonance but numerous coarse mucous rales throughout. Heart normal. The area of thymus dullness extends from the sternal margins on both sides, in the first and second interspaces. Spleen not palpable. Respiration shows well marked inspiratory stridor. Voice sounds clear. Babe is of exudative type; it shows no signs of spasmophilia nor does it give a history of such. It is a fairly typical case of the so-called Paltauf's *status lymphaticus*. Hemaglobin, 80 per cent. The blood picture shows a lymphocytosis of 53.1 per cent. Von Pirquet reaction negative. The radiograph showed a marked increase in the size of the shadow of the thymus area.

Diagnosis: Enlarged thymus.

Treatment: Three Roentgen ray exposures a week apart. Improvement began immediately, so that six weeks after the last exposure the coughing attacks, the increased wheezing upon lying down and all the other distressing symptoms originally present had entirely disappeared. The child began to gain in weight and the general condition became much better. As seen March 1, 1913, aged two and one-half years, the child was in good condition, except for the persisting hypertrophied tonsils and adenoid tissue. The mother says there has been no reappearance of any of the old symptoms since the third exposure.

A third interesting case is also well worth reporting, although not yet completely recovered. This is a babe brought to the Sick Babies' Dispensary on February 21, 1913, at the age of three weeks, weighing 4,100 grams. History: Noisy breathing since birth and blue most of time; much worse when on its back. Has severe coughing attacks, during which it becomes very dark in color and the parents believe the babe dead at times.

Physical examination shows a well nourished babe with slightly cyanotic lips, a well marked inspiratory stridor and slight difficulty in expiration; both phases improve immediately when the child is held in the upright position. Slight general lymph gland enlargement. Tonsils slightly enlarged. No evidence of adenoid tissue. Lungs show occasional coarse mucous rales throughout but no areas of impaired resonance. Heart dullness in the first and second right interspaces anteriorly extends 2 cm sounds clear and normal; no cardiac enlargement. The area of thymus from the midsternal line, 1 cm on the left. No palpable spleen. Cry clear, von Pirquet reaction negative. No sign of exudative or spasmophilic diathesis. The radiograph shows a moderate degree of increase in the size of the thymus shadow.

Diagnosis: Enlarged thymus.

Four Roentgen ray exposures were given in two weeks. At the end of the first week, the breathing was much improved in dorsal decubitus and the cyanosis was gone. The child has had but one hard coughing attack since the first treatment and that was March 2, 1913. Respiration when sleeping now gives but the faintest inspiratory wheeze. This babe will probably require many more exposures.

The time of exposure in each of the above cases was from five to eight minutes, a leather filter being used. A Walter No. 5 or 6 tube was used. In the first 2 cases there was a total dosage of 1,800 milliamperere seconds given at a distance of fourteen inches from the body of the patient and directly over the thymus area.

The so-called *status lymphaticus* is being worked upon in these days by numerous investigators. The term is very vague

and mystifying and has served as a good blanket to cover our ignorance as to the sudden death in infants and young children for many years. All we know of it is that in such a condition there is usually present a general enlargement of lymph node groups in different regions of the body, hypertrophy of the tonsils, of the pharyngeal lymphoid tissue and of intestinal follicles, occasionally a large spleen and always an enlarged thymus. The latter is apparently always the etiological factor in the sudden death of these cases. But the enlargement of the thymus may occur without any of the other conditions of the above mentioned lymphatic state, and there may be, as we quite well know, no respiratory or circulatory symptoms, the condition often being found postmortem in cases where death is due to some other cause. These facts seem to contradict the theory that internal thymic secretion causes the lymphatic state and which also says that the sudden death in these cases is due to a toxin eliminated through this secretion. We do find, however, that sudden death results when there is but a very moderate enlargement, and this found at autopsy with no physical signs of pressure. This is explained by the fact that the thymus becomes suddenly engorged with blood, as in excitement, anger, pain, following anesthesia or from no apparent reason, and causes death, so Adami thinks, by direct pressure on the trachea or reflexly through the sudden pressure on the inferior laryngeal nerve of the vagi. Adami also states that this sudden hyperemia is quite probable and that this condition might pass off before the case comes to autopsy. Another very well explained cause of thymic death, is that in a moderate enlargement of the organ the head may be suddenly thrown back, the gland pulled up as a wedge into the upper thoracic aperture and, considering the fact that in infants under one year the average antero-posterior diameter of this opening is but 2 cm, it is readily seen how fatal pressure might be caused.

Sokolow analyzed 163 cases of hypertrophied thymus from the literature. 101 were cases of sudden death, with enlargement of the organ found postmortem, and no history given of thymic asthma; 62 were cases of thymic asthma with no death. He concludes that in the first group of cases thymic asthma was present, but unrecognized; or, in his words, there is no *mors thymica* without previous thymic asthma at some time or other. No one can positively dispute this, but the above mentioned explanation of sudden death without previous symptoms seems very

plausible. However, it might be well when taking the history of a child under two years to question carefully about the presence of asthmatic wheezing attacks, of difficult breathing and cough, and cyanosis, the cardinal symptoms of thymus enlargement.

There is no doubt that the thymus is too little considered and that the cyanosis is often attributed to a congenital heart lesion and the respiratory trouble and the cough to the result of an old bronchopneumonia, to bronchial lymph glands, to tonsils or adenoids, or to the laryngospasm of spasmophilia. Each of these of course is a condition to be considered before diagnosing an enlargement of the thymus, and for this latter we must be certain of an absence of the nervous phenomena of spasmophilia, a negative von Pirquet reaction, and a normal temperature, in addition to the inspiratory stridor and other symptoms just mentioned and the fact that the condition has prevailed since birth or the very early months of life. The asthmatic condition, as stated by numerous authors, may be constant or intermittent, with or without acute exacerbation. The inspiratory stridor usually is constant but becomes very slight at times, at other times becoming very severe and accompanied by an expiratory stridor. This type of breathing is easily differentiated from the stertorous type due to tonsils, adenoids and pharyngeal lymphoid tissue. The normal voice sounds aid in eliminating a laryngeal condition. The entire picture of thymic asthma becomes much worse through excitement, anger and pain. An attack is usually relieved to a degree by holding the child upright or in the ventral position.

Numerous papers have been written on the percussion of the thymus area. Sahli advises very light percussion. Blumenreich followed this advice and percussed out the area in 55 cases of sudden death and verified his findings at autopsy. In each case there was a triangular area of dullness, the base being at the sternoclavicular junction and the apex in the second left interspace at the sternal margin. The most of the enlargement is found to the left. But when one considers that the thymus is composed of two long lobes, located over the trachea and its border overlapped by lung tissue and the sternum in front of all, the opportunity for error in percussion findings is extremely great.

Aside from the symptoms, the radiograph is about our next and only other valuable aid in diagnosis. Hochsinger as quoted by Klose defines the outline of the normal thymus shadow in a

radiograph as looking like the narrow neck of a flask, of which the body is the pericardial sac and contents. The neck extends from the second or third to the fifth or sixth dorsal vertebrae, the shadow being the width of the vertebral column. The only criticism with the radiograph is that the most important dimension of the thymus, the thickness, is almost impossible to secure even from a section. In many of the radiographs showing an enlarged shadow in the thymus area the trachea is seen to be pushed considerably to the right of the median line. After the treatment and after the relief from the symptoms, the radiographs of the cases reported show but little diminution in the width of the thymic shadow. This I believe might be explained by the fact that after involution of the gland there is still the large amount of connective tissue present, which would of course cause the shadow.

As to the actual weight of the thymus, as shown at autopsy, there is more or less variance of findings. Pappenheimer probably gives the best outline of the average weights at different ages, based only on cases of sudden death. It is as follows: Average weight in the new born, 13.98 grams. From birth to the ninth month this increases to 20.14 grams. From the ninth month to the second year it increases to 26.6 grams, the maximum weight. From the third to the fourth year the weight is 26.3 grams, from the fifteenth to the twenty-fifth year 21.54 grams. In this series there were no cases of acute or chronic infections, which latter always reduce the size of the organ, as the thymus parenchymal cells are extremely sensitive to the toxic influences of such diseases. The latter is a fact to be remembered when some of the pressure symptoms manifested by an enlarged thymus are present following some pulmonary infection, the condition here being probably enlarged bronchial glands. Another differential point here is, that if the former condition prevails there is a history of the presence of some of the symptoms since birth or the very early months. Adami states that in pedatropy the thymus also diminishes considerably in size.

There has been a moderate amount of experimental work done on the effect of the Roentgen ray on the thymus of dogs, rabbits and cats, the most important of which has been done by two Americans, Friedlander and Lange; a German, Basch; and four Frenchmen, Regaud, Cremieu, Dumas and Weil. The results are very interesting. All agree as to the involution of the thymus

cells and replacement by fat and connective tissue, even to the complete destruction of the thymus parenchyma, by means of graduated exposures to the Roentgen ray and that this involution begins within three to four hours after exposure. All are very skeptical, however, as to the regeneration of any of the cells following the involution, except Friedlander and Lange, who have definitely shown in the thymus of rabbits exposed to X-ray with differently graduated exposures as to time, strength of dosage, number of exposures and length of life after exposure, that mitotic division does occur in the parenchymal cells after involution has ceased or during the latter part of this process. They also have shown that almost any degree of involution from slight fibrosis to complete sclerosis may be obtained from properly regulated exposures. This regeneration finding seems also to be borne out in clinical reports by Rachford and by Friedlander and Lange of two cases of recurring symptoms, within a year after their first relief by X-ray, and their subsidence the second and third times by a moderate repetition of the first period of treatment. Friedlander and Lange also state that there may be a latent period anywhere up to ten days before improvement begins and advise in urgent cases repetition of exposures on successive days, until some relief of symptoms appears, and then to go much slower for a period of a month or two, letting the severity of the symptoms regulate the repetition of treatment. It is usually better to stop the treatment before all of the cough or asthmatic stridor has disappeared, or the involution may continue to the complete fibrosis of the gland. After the latter, symptoms similar to those following thymectomy may occur, which are slow and faulty development especially of the osseous system during the first two or three years of life.

As to the other methods of treating thymus hypertrophy, the futility of drug therapy is well known. Surgery, according to some authors, is invaluable in cases of extreme urgency. Klose seems to have done considerable work experimentally and clinically on thymus extirpation. He collected 23 cases from German literature, of which number 16 made complete recoveries and 7 died. Veau and Olivier made a collection of 48 cases from French literature, finding 28 complete recoveries, 5 uncertain and 15 deaths. Experimentally it has been definitely shown that thymectomy in early life causes most serious changes in the development of the osseous system, in general nutrition and in the central

nervous system. Clinically rickets or death seem to be the only complications attending the operation, but these are quite enough to cause one to hesitate before advising a surgical procedure.

To summarize:

1. The Roentgen ray properly used seems to be the most efficient means we have of treating enlarged thymus with symptoms of thymic asthma, and no harmful results have as yet appeared.

2. Severity of symptoms must regulate the number of exposures.

3. A short, strong exposure of five to eight minutes will accomplish the same results and without danger as fifteen to twenty minutes weak exposure.

4. Not only does relief from symptoms follow, but there is a marked improvement in the general condition of the child.

5. The diagnosis of enlarged thymus depends chiefly upon the symptoms, the radiograph and the result of Roentgen ray exposure. Physical findings cannot be relied upon.

In closing I wish to thank Drs. W. C. Hill and G. F. Thomas for their very kind services in taking the radiographs and giving the treatments to the cases mentioned, in the X-ray laboratory at the Sick Babies' Dispensary.

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**Oh! You Newspaper Medicine.**—Raymund's (meaning Reynaud's) disease . . . is named after Dr. Maurice Raymund. It has its seat in the heart and results in a diminished flow of blood to the lungs.—(Cleveland Plain Dealer.)

Mrs. . . . ., whose hand was bitten by a mad collie dog last week, will take the Pasteur treatment. Although her hand swelled, Mrs. . . . . . for a week laughed at the possibility of lockjaw and refused to take the Pasteur treatment.—(Cleveland Press.)

In a few minutes the doctor said: "You have mixadenia." It is the fifteenth case in medical history. Cartilages of the thyroid glands gradually had slipped away and the absence of thyroid glands had caused the trouble which was sapping his life. Now that doctors know what the cause of the trouble is, they say Atkinson will be cured and as healthy as ever within six weeks. A cure will be effected by pulverizing the thyroid glands of a sheep and giving it to him internally. New glands will form.—(Cleveland News.)

## The Serum Therapy of Meningococcus Arthritis

By H. L. TAYLOR, M. D., Resident Physician, The Lakeside Hospital, Cleveland.

Arthritis complicating epidemic meningitis has been reported as occurring with varying frequency in the numerous epidemics of the last century. North<sup>1</sup>, of Boston, speaking of some of the unusual features seen in the outbreak of 1806, described joints showing "swellings like rheumatism." Welch, Jackson and Warren<sup>2</sup> made a similar observation on the Massachusetts epidemic, likening the joint condition to that seen in gout. In the earliest German outbreaks, Strümpell<sup>3</sup> finds joint involvement a rare complication, although in the later epidemics the condition has been frequently found.

Levy<sup>4</sup> in 1849 found pus twice in joints associated with cerebrospinal meningitis. Berg<sup>5</sup>, in describing the New York epidemic of 1895, and Kotsonopulos<sup>6</sup>, in the Grecian outbreak, reported joint complications present in many cases. Councilman, Mallory and Wright<sup>7</sup> found six cases in their series of one hundred and eleven. Osler<sup>8</sup> reports two in twenty-one cases. Three cases were noted in our Lakeside Hospital series of twenty-nine. Friis<sup>9</sup>, Richter<sup>10</sup> and Ladd<sup>11</sup> have also noted arthritis complicating meningitis. According to writers quoting definite figures on the point, the frequency of its occurrence varies from 4.5 to 9.5 per cent.

The pathology of the condition has never been satisfactorily worked out. In the Boston epidemic, where the joints were studied in one fatal case, nothing characteristic was found. The folds of mucous membrane are swollen and congested in the mild forms. The more severe types show the exudation of a variable quantity of a serous, seropurulent or fibrinous fluid into the joint

1. North: *A Treatise on a Malignant Epidemic Commonly Called "Spotted Fever,"* 1811, p. 15.

2. Welch, Jackson and Warren: *Medical Communications and Dissertations of the Massachusetts Medical Society*, 1813, II, 135.

3. Strümpell: *Lehrbuch*, 1889. *Deut. Arch. f. klin. Med.*, 1882, XXX, 517-523.

4. Levy: *Gaz. Med. d. Paris*, 1849.

5. Berg: *Arch. for Pediatrics*, 1849, XI, 360.

6. Kotsonopulos: *Virchow's Arch. f. path. Anat.*, 1871, LII, 76.

7. Councilman, Mallory and Wright: *Report of Massachusetts State Board of Health*, 1898, p. 154.

8. Osler: *Boston Med. and Surg. Jour.*, 1898, CXXXIX, 641.

9. Friis: *Virchow-Hirsch*, 1892.

10. Richter: *Breslauer ärzt. Zeitschr.*, 1887.

11. Ladd: *Jour. Amer. Med. Assoc.*, 1908, LI, 1318.



cavities, with infiltration and often destruction of joint tissue. These purulent joints may heal, leaving little or no trace, but usually necrosis and subsequent ankylosis result.

The joint pains usually usher in the attack or appear soon after the onset of the meningeal signs. In twelve of the fifteen reported cases the onset was during the first week, and in nine of these the joints were involved the first day. In fact, the appearance of the swelling and the pain in the joints so often before the head signs develop has caused much confusion in diagnosis, it being uncertain whether one was dealing with a very acute rheumatism with head signs, a meningitis with joint complications, or the coexistence of the two diseases. The two purulent Lakeside Hospital cases developed on the tenth day, while one case in the Boston epidemic did not appear until the second month, but these late manifestations are rare.

The symptoms are those of any acute inflammation, redness, stiffness and swelling being constantly noted. In eight cases a turbid serous exudate was present and in six pus was found on aspiration. Ecchymotic spots over the affected area have been noted. The distribution of the affection is very similar to gonorrhoeal arthritis. The knee was involved eleven times; the wrist, eight; ankle, six; the elbow, three; the shoulder, hip and the small joints of the hand, twice each, and the foot once. Usually the arthritis is polyarticular in type, but when it does assume the monarticular form the knee is the joint attacked. Four cases showed involvement of the knee alone. Unless one watches the joints carefully for local tenderness and exudate these arthritic pains may be interpreted as due to nerve root irritation from the meningitis and the arthritis overlooked.

The diagnosis of meningococcus arthritis is difficult only in the early stages, when joint and head symptoms appear together. Here lumbar puncture will demonstrate the meningococcus and the failure of acutely swollen joints to respond to the salicylates also may cause us to look beyond the simple rheumatic fever for a cause. Aspiration of the joint may throw some light on the situation, although the organism is very difficult to grow from the joint fluid. Osler isolated the organism from Case VII of his series on the fourth day of the disease. Schottmüller<sup>12</sup> grew one feeble colony from one cubic centimeter of aspirated pus. Friis and Ladd were unable to grow the organism, although it

12. Schottmüller: *Münch. Med. Wocheuschr.*, 1905, *LII*, 1731.

was present in the exudate. In the cases here reported no organisms grew out in culture, although the smear of the pus showed a few irregular staining, Gram negative organisms, biscuit-shaped and intracellular in type. In cases of definite cerebrospinal meningitis we may regard the arthritis as due to the same causative agent, although the manner of its action is not always clear. There may be localization of toxins or of organisms in the joint, or the joint condition may be trophic, as is often found in brain and spinal cord diseases.

The duration of the joint involvement depends primarily on the severity. In one case reported by Osler the inflammation of the ankle joint subsided in two days, but often it may last one or two months, long after the meningeal symptoms have disappeared. In joints which have not gone on to suppuration ten to twenty days marks the course of the disease. The purulent joints, evidencing a pyemia, are more often associated with fatal results, but if the patient survives the meningitis the course is similar to that of any pus joint. In the nonsuppurating joints the outcome is good, restitution to normal taking place in all cases.

Before referring to the therapy, which is the main object of this paper, let me report the following case:

M. J., aged 21 years, entered the Lakeside Hospital on the service of Dr. C. F. Hoover, complaining of "pain on movement." The onset of the trouble was April 6, 1912, when the patient developed a sore throat, complained of headache and had several attacks of vomiting. The second day the patient became delirious, developed rigidity of the neck, pain in the chest, along the spine and in the muscles of the extremities. On admission, April 11, the picture was that of a young athlete suffering from severe meningeal irritation. The slightest touch was annoying. He lay with retracted head, the fingers moving aimlessly. There was general muscular twitching. The neck was rigid. Elevation of the head caused flexion of the thighs, knees and elbows. The legs, feet and toes were strongly extended, limbs rigid, Kernig's sign present on both sides. There was general abdominal tenderness. The abdominal and cremasteric reflexes were very active. The patellar and tendo Achilles reflexes on both sides, together with those of the left biceps and supinator, were gone. On the right side the biceps, triceps and supinator were present, but very sluggish. Temperature was 102°, pulse 92, respiration 20, white blood corpuscles 18,000.

Lumbar puncture done on entrance showed a greenish yellow, cloudy fluid under pressure. The turbidity was found to be due to pus and the fluid contained both extra- and intra-cellular diplococci, which on culture proved to be *Diplococcus intracellularis* of Weichselbaum. The antimeningococcus serum was injected into the spinal canal on the fifth, sixth, seventh, ninth and twelfth days of the disease, relieving promptly the headache and the mental symptoms. The fever persisted, however, and on the tenth day of the disease, April 15, the patient complained of pain in the left wrist and shoulder joints. The right elbow at the same time showed fullness, tenderness and fluctuation due to a distended capsule. On the following day the right shoulder and knee became involved,

and both shoulders, the right elbow and the right knee were aspirated. Fifteen cubic centimeters of a greenish yellow, purulent fluid were obtained from the elbow and ten cubic centimeters from the knee. The fluid was replaced in the joint by the antimeningococcus serum. Smears from the pus showed extra- and intra-cellular Gram negative diplococci, whose morphology was similar to but not so distinct as that of those found in the spinal fluid. There seemed to be many disintegrated organisms. Cultures showed no growth. Blood cultures taken at the same time were negative.

Two subsequent aspirations of the right knee were made, with the injection of the specific serum. Within three days both shoulders and the right knee were entirely well, but it was not until May 1, two weeks after the appearance of the arthritis, that the fluid and the limitation of movement disappeared entirely from the right knee, although pain and tenderness to pressure were gone within twenty-four hours after the second injection of the serum. The temperature also promptly dropped to normal, and there has been no subsequent disturbance of the joint function.

We have come to regard a purulent joint as a surgical condition demanding usually prompt aspiration with the injection of some antiseptic, or else free drainage, and even then the impairment of function is usually great. But here we have the case of a suppurating joint entirely subsiding with the complete restoration of function under the use of a specific bacteriolytic serum.

The most recent works on therapeutics, as well as the more extensive discussions of the serum treatment of meningitis, overlook entirely this specific means we have at our hand for these purulent joints and tell us that such joints must be drained. In 1908 Dr. L. W. Ladd first injected a meningococcus pus joint with a specific serum with complete success. Since that time, if it has been attempted, no reference has been found of the procedure.

To Flexner belongs the credit of pointing out the advantage of injecting the serum directly into the subarachnoid space in cerebrospinal meningitis, thus getting the serum in contact with the organism. Later Cushing, of Baltimore, took advantage of this conception and carried out intraventricular injections of serum in children in whom the foramen of Majendie had been shut off by the inflammatory process, thus preventing the ordinary spinal injections from reaching the organisms enclosed in the ventricles. For the same reason we can see the rationale of the specific serum injected directly into a meningococcus pus joint, where we have it working at the greatest advantage. These purulent joints represent a real blood invasion with localized points at attack in the articulations, and we know that the serum acts

directly on the meningococcus besides causing increased phagocytosis and intraphagocytic digestion.

While there are only two cases reported that have been treated in this way, still the prompt subsiding of the signs and the symptoms in these cases in a manner quite unlike that of any other pus joints, makes us feel that we are dealing here with a little used but powerful and valuable therapeutic agent.

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**The American Infection**—To the Greek all the world beside was barbarian; to the Jew all men else were Gentile; to the Roman the rest of humankind was beneath contempt. It is precisely such provincialism, only up to date, when the American citizen, his newspaper before him and his breakfast cup of coffee in hand, blesses himself that he is not as those fatalistic East Indians, who sicken and die so unnecessarily of cholera. Consider, nevertheless, how, from January, 1907, to October, 1911, and including the appalling epidemic of 1910, there occurred in Russia 283,684 cases of Asiatic cholera, while in these enlightened United States during the same period there were (by conservative estimate) 1,250,000 cases of typhoid fever, or more than four such patients for every cholera sufferer in Russia. Yet these two ingestion infections are about equal in virulence and precisely identical in nature; both are contracted only by taking into the mouth food or drink impregnated with either of these germs, and in absolutely no other way. Thus, theoretically at least, the prevention of typhoid fever is one of the simplest things imaginable. It is principally a matter of keeping filth out of the drinking water. Dr. A. J. McLaughlin of the Public Health and Marine Hospital Service, who recently presented many data such as these before a meeting of life insurance officials, observed on that occasion that 175,000 cases of typhoid fever could be prevented among our people by a campaign of education, with an annual saving of about 16,000 lives. Every typhoid case is due to somebody's ignorance or carelessness or meanness. Typhoid causes us an annual monetary loss of \$100,000,000; in fifty of our largest cities its mortality rate has averaged 25 persons per 100,000 population as against 5.6 for thirty-three leading cities in northern Europe; in 1909 there were more cases of typhoid among us than there were plague cases in India, though the population of that venerable peninsula is two and a half times as great as ours. Twenty typhoid deaths per 100,000 probably represent 200 cases of that disease; imagine what would occur should 200 cases of Asiatic cholera suddenly develop in any one of our American cities! Most of our 90,000,000 would be witless from fright; there would be first-page headlines in every paper in the country. Yet we take these 200 cases of typhoid fever and their tragic toll of youth with no more vivid expression of emotion than a fatalistic shrug.—*Collier's*.

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**Teaching of General Medicine**.—The weakest part of medical teaching is general medicine. It should be the strongest. It should be a university department, like the other divisions of biologic science. It must be given its laboratory; that is, a hospital. It must be given its equipment. It must be given its material. It must be given its personnel; that is, paid scientists and teachers who devote their time to this work. It must have money. The problem of teaching general medicine is the great problem in medical education. You have built a good foundation, gentlemen; but you have put on a temporary roof at the height of the first floor, and you are holding divine services in the basement. It is time to build the church.—Lyon in *J. A. M. A.*

## Washings from the Autopsy Table as a Possible Source of the Spread of Disease

By W. D. FULLERTON, Ph. B., M. D., Resident Gynecologist, The  
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As medical students we studied bacteriology with all pertaining to the various microorganisms, their different morphology, characteristics of growth, modes of reproduction and their various culture media. Here was laid the foundation for the knowledge of infection and asepsis.

Then came the elements of hygiene and sanitation and the study of the spread of disease through unsanitary habitats and by direct communication, milk supplies, bacilli carriers, sewage, drinking water, mosquitoes, flies, rats, squirrels and by oysters and clams.

At the same time the subject of medicine itself was taken up. Here typhoid fever and tuberculosis stand out most prominently, and here especially, with these diseases as excellent examples, were we drilled in preventive medicine and brought to realize the truth in the old adage, "An ounce of prevention is worth a pound of cure," and I might add, yes many, many pounds of cure. Here we were taught the best methods of safeguarding those who had to come into direct contact with the patient. In the case of typhoid, the use of rubber gloves when handling the patient, the best known methods of disinfecting bath water, stools, urine, dishes, clothing, etc., and with tuberculosis, the most sanitary methods of collecting and disposing of sputum, the most hygienic housing or rather unhousing of the patients. Then, in rapid succession came malaria, diphtheria, yellow fever, cholera and dysentery, with the history of the discovery of their etiology and subsequent effectual methods of prevention.

In conjunction with these courses, histology or the study of the normal tissues having been completed, pathology was taken up, treating fundamentally of the havoc wrought in the tissues by disease. Here also, as in bacteriology and elementary surgery, were we told of the danger of sepsis and infection.

The above training having been received, I witnessed an autopsy performed in a large, well conducted hospital, on a patient dead of typhoid fever. A basin containing running

water was on the table, and with a sponge the blood and other fluids were mopped out of the body and the sponge rinsed in the basin, the overflow from which apparently drained into the sewer. The bowels having been taken from the body, they were opened and washed in the sink, which also apparently drained into the sewer. The other viscera as they were removed were repeatedly washed in the basin on the table. The autopsy completed, the table and sink were washed clean with tap water which drained off and then disinfecting solutions were used to complete the cleaning up.

I was dumbfounded with the idea that what seemed apparent might indeed be a reality. I felt confident that some unseen means must certainly be employed to sterilize these washings before allowing them to drain into the open sewer. On asking the pathologist what means of sterilization were employed, he replied in a most unconcerned and matter of fact way, "Oh, none whatever, they go direct into the sewer." I could scarcely believe what I heard, to think that in any modern hospital such conditions should prevail. Think of the reprimand for the orderly or undergraduate nurse who is found neglecting the sterilization of typhoid bath water, stools, urine, dishes, etc., or, of the third or fourth year student who is unable to give minute directions for such procedures, and then of these conditions.

The pathologist, shame unto him, he who to be a pathologist in a broader sense, must necessarily be bacteriologist, hygienist, sewage expert and must possess extensive knowledge of the spread and communication of disease.

These conditions I felt must be local, but the further I inquired the more astonished I became. Since then I have written to each of my classmates from my medical school, who were then interns in hospitals all over the United States and some working in foreign hospitals. Here I wish to take the opportunity of thanking them for their hearty cooperation, their careful answers to my questionnaire and the promptness of their replies.

In all, I have information concerning twenty-two hospitals in the United States scattered from coast to coast. There are one or more replies from Germany, Panama and the Philippine Islands. This group of institutions is comprised of large medical and surgical hospitals, great city hospitals and morgues,

*but not in a single instance was any means taken to sterilize the washings from an autopsy.*

What now will be the defense of these institutions? I presume the first argument of the majority will be that there is practically no danger; it is doubtful if any will say no danger. Just how true and how warranted is such a defense?

The gradual development of sewage disposal plants is a very praiseworthy step in preventive medicine, but what proportion of cities have efficient disposal plants? Even with those that have, the sewage during purification is often exposed and accessible to the increasingly dreaded distributor of disease, the house-fly. Many sewers empty directly into fresh water streams, which but a few miles further on frequently serve as a water supply for larger or smaller cities. Although in many instances this may not be true, here again enters our arch enemy, the house-fly, who infests every sewer mouth. Then pause but a minute and consider the number of small boys and others who have a "swimmin' hole" in these streams, often within a short distance of the sewer mouth, and this swimming hole visited frequently during the season typhoid is most prevalent.

We have but to turn to the cholera epidemics of Hamburg and other cities to be impressed with what an all important source of infection is the drinking water. Today, almost every farmer in the land realizes that it is almost certain death to every uninoculated hog he possesses, that waters in a stream on which, higher up, cholera infected swine are quartered. Without considering other diseases communicable through food supplying animals, may one not ask the question, "How often does the tuberculous or typhoid infected cow acquire her infection through the contaminated water she drinks?" Probably not so often as through other channels, but may this possible source be entirely disregarded? I believe not; therefore, another possibility of infection that must be considered is indirectly through the live stock watering in these sewage polluted streams.

Let us turn now to those who say, "But our sewers empty into the salt water of the oceans, which, not being used for drinking by man or beast, eliminates any danger of infection." They have not considered the thousands who bathe in the bays and harbors polluted by their sewage, with the danger of infection through water taken into the mouth as well as that which is frequently swallowed. Nor have they taken into account

the house-fly, who is usually present, or the sewer rat, of which every sewer has its share. Then again the bivalves, the oysters and the clams, both eaten raw as well as otherwise, must not be lost sight of. The English law prohibiting the gathering of these shellfish within a certain number of miles of sewer mouths, shows the importance of these factors.

At present in the United States there are no federal or state laws governing the gathering of shellfish in polluted waters. The necessity of such laws though is evident from the works of Fuller<sup>1</sup>, Conn<sup>2</sup>, Virginia State Board of Health<sup>3</sup>, Savage<sup>4</sup>, Buchan<sup>5</sup>, and from that excellent investigation of G. W. Stiles, Jr., "Shellfish Contamination from Sewage Polluted Waters and From Other Sources," published as *Bull* 136, *Bureau of Chemistry, U. S. Dept. of Agriculture*.

In Stiles' researches, as elsewhere, the presence and number of *B. coli* were considered as evidence of and degree of pollution. Shell oysters collected from localities reasonably free from pollution showed an average of 4,300 bacteria per ccm, but no *B. coli*; from grounds showing probable pollution, 12,500 organisms and 5.5 *B. coli* per ccm, and from polluted waters as high as 19,000 organisms and 100 *B. coli* per ccm. The examination of sea water over oyster beds showed a more serious pollution of the deep than of the surface water.

Some laboratory experiments on the vitality of *B. typhosus* and *B. coli* in solutions of sodium chlorid, showed inhibition of the growth of *B. typhosus* after three hours' exposure, and of *B. coli* after six hours' exposure to a saturated solution. Growth of each was retarded in a 25 per cent solution but took place in lower dilutions.

As the oysters grow best in water containing 1 to 3 per cent of sea salt, it is easily seen sea water does not prevent bacterial growth. Hewlett<sup>6</sup> states that from oysters, inoculated with *B. typhosus* and kept alive in tanks of sea water, unimpaired typhoid bacilli were recovered as long as eighteen days after inoculation.

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<sup>1</sup> Fuller, G. W.: *Jour. A. M. A.*, 1905. p. 1059. and *Report of State Commission of N. J.*, 1905. pp. 113-144.

<sup>2</sup> Conn, H. W., and Gage, S. DeM.: *Med. Record*, 1894. pp. 743-746.

<sup>3</sup> *Va. Health Bulletin*, 1909, pp. 307-328.

<sup>4</sup> Savage, W. G.: *Jour. Hygiene*, 1905. pp. 146-174.

<sup>5</sup> Buchan, E. F.: *Public Health (London)*, 1908. pp. 54-56.

<sup>6</sup> Hewlett, R. T.: *Manual of Bacteriology*, p. 268.



Clams and their surrounding waters showed a much heavier average pollution than did the oysters. Ten to fifteen minutes exposure to live steam was found necessary to destroy *B. coli* in small quantities of ordinary market oysters.

Next, the argument of expense will be used by some against any procedure to eliminate any such theoretical danger. The matter of expense will be dealt with presently, but even though the expense were to be more than trifling, would such an argument be justifiable? Does the surgeon spare time or expense in preparation for any operation however small? No. Would the pathologist be willing, for any sum within his means, to have the surgeon omit *any* aseptic precaution if he were the patient? How, then, is the pathologist justified in considering expense when thousands often are to be exposed by his omissions?

Let us next consider the several means of sterilization, their varying simplicity and relative expense. Two means at once present themselves, sterilization by heat or by chemical means. In either case a suitable receptacle for the washings must be provided and this is easily done by obtaining a cylindrical can of 20 gage galvanized sheet steel 40 cm in diameter, 50 cm in height, having a capacity of 63 liters, which should be sufficient, as 40 liters has been found by experiment to be adequate for the ordinary autopsy. This can should have substantial handles and a

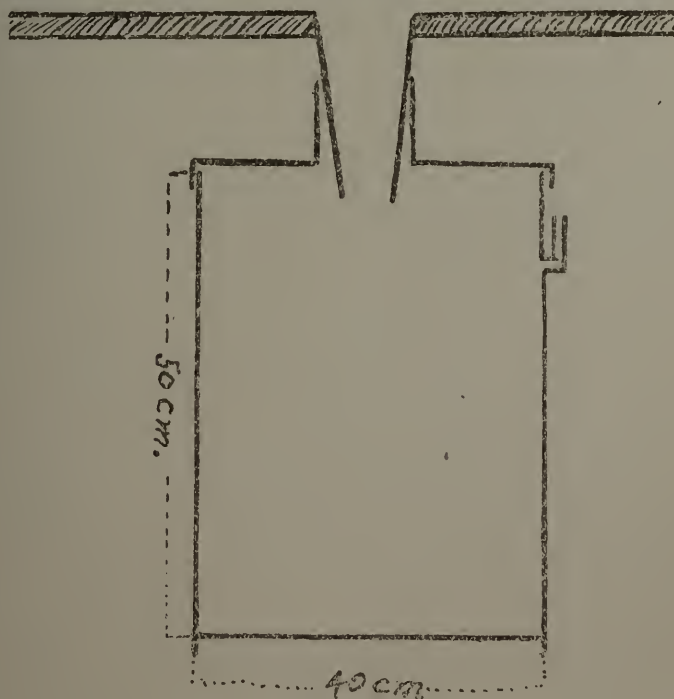


Fig. 1

tight fitting lid, which preferably fits over the top of the can rather than into it (Fig. 1). The lid should also be provided with two handles and connect through a hollow sleeve in its center with the drain pipe from the table; the drain pipe being straight the can may be placed directly beneath the drain, or if fitted with a swinging elbow the can may be placed beyond the table edge. A guage on the side of the can will indicate when the contents are nearing the top. In case sterilization is contemplated by chemical means, it would be very convenient to have a graded scale in liters on the inside so that the volume of the contents may be known at a glance; the necessary amount of chemical per liter being known, the computation is simple. The cost of such a can as specified would be about \$4.50, but the price may be greatly reduced by using lighter material.

In case the sterilization is to be done by heat, the can may rest on a suitable large Bunsen burner and time may be saved by lighting the burner as soon as the washings begin to run into the can. No prohibitive odor results from the boiling.

The autopsy table should be provided with a smaller circular or oval topped basin with a radius of 15 cm and depth of 12 cm, fitted with a stopcock intake at its base to which a rubber hose may be connected from the faucet. It may also have an overflow at the top. The flow in this basin may be regulated by the cock and all water used during the autopsy should be obtained from this source, and here all viscera, etc., washed during examination. The can itself may be cleansed as are the instruments used in the autopsy.

In those institutions having a supply of live steam constantly at hand, the can may be fitted with a steam coil and the cost and labor of sterilization be reduced to a minimum.

Some of the best and cheapest chemical agents used for disinfecting purposes, their cost in bulk, time and strength required, cost per liter and per 40 liters of washings, which the usual autopsy should never exceed, are tabulated below, where a similar tabulation is made for natural and artificial gas.

The more albuminous the washings are, the greater the degree of concentration required, and with any of the chemical means of sterilization it would be far preferable to have them exposed to the disinfectants for several hours. On account of the variable impermeability of the solid particles in the washings

to chemical agents, which is further increased by some agents owing to their coagulating powers, and on account of the increased length of time necessary for thorough sterilization and the greater expense, heat is by far the preferable means.

#### COMPARATIVE COST OF AUTOPSY DISINFECTION

	Cost	Strength	Time	Amt. per L.	Cost per L	Cost per 40 L.
Natural Gas.....	\$0.30 per 1000 cu. ft.	Boiling	60 min.	1 cu. ft.	\$0.0003	\$0.012
Artificial Gas....	\$0.80 per 1000 cu. ft.	Boiling	60 min.	1.5 cu. ft.	0.0012	0.048
Liq. Cresolis Comp	\$0.75 per lb.	1:100	60 min.	10 gms.	0.0016	0.064
Mercuric Chlorid..	1.35 per lb.	1:1000	60 min.	1 gm.	0.003	0.120
Formalin.....	1.50 per gal.	1:100	30 min.	10 gms.	0.003	0.120
Potassium Permanganate....	.30 per lb.	1:100	30 min.	10 gms.	0.0066	0.264
Lysol.....	.75 per lb.	1:100	30 min.	10 gms.	0.016	0.640
Carbolic Acid.....	.30 per lb.	1:20	10 min.	50 gms.	0.033	1.320

#### Conclusions

1. It is grossly negligent and inconsistent with modern medicine to contaminate sewage with infected autopsy washings, and thereby frequently to expose entire communities to infection, directly or indirectly.

2. The washings from every autopsy where an infection is present should be sterilized, by one of the methods suggested or otherwise, before consigning to the sewer.

3. Sterilization by heat, when all cases are considered, is the most rapid, thorough and convenient and accomplished with least labor.

4. If a supply of live steam be not constantly at hand, natural or artificial gas is the cheapest means. When these methods cannot be employed Liquor cresolis compositus or formalin are the best agents to use, though other disinfectants may be employed.

**The Real Difference**—A lady asked her husband or somebody, the other day, this very important question:

"What is the difference between a sanitarium and a sanitorium?"

And the wise man answered, right off the bat, like this:

"It's like this. If you discover a healing spring and found a health resort and called it the Woozy Water sanitarium, that's a sanitarium. And if you make a success of it your rival finds another spring a mile away and builds another one and calls it the Woozy Water sanitorium. And that's the difference."

"Isn't it ever any other way?"

"Yes, dearie. Sometimes it's vice versa."

So that's how it is.—Ted Robinson in the *Plain Dealer*.

## Acute Suppurative Otitis Media Due to Bacillus Typhosus

By J. J. THOMAS, M. D., and D. A. PRENDERGAST, M. D., Cleveland

The case to be reported is one of acute suppurative otitis occurring during the course of typhoid fever. It is interesting because the typhoid bacillus was found to be the cause of the suppuration in the middle ear, a condition that is not common; and because a fatal termination ensued from streptococcus meningitis, the later infection seemingly to be separated entirely from the middle ear condition.

September 20, 1912. The patient, a boy, aged 12 years, during the second week of a typical course of typhoid, complained of earache. The examination of the ear revealed a deeply congested tympanic membrane. The appearance of the membrane was rather unusual; it was of a deep copper red color with scarcely any bulging. A paracentesis was performed. Pus did not appear until the next day. A swab taken from the pus was submitted to Dr. T. R. Brown, bacteriologist of the State Board of Health, for examination. Doctor Brown isolated an organism that corresponded in all the usual tests to the typhoid bacillus. The aural discharge ceased in about ten days. The child complained of earache on two occasions within ten days after the discharge had stopped. The examination of the ears during these attacks gave negative findings.

About two weeks after the cessation of the aural discharge he developed typical meningeal symptoms. The subarachnoid fluid obtained by lumbar puncture was submitted to Dr. O. T. Schultz for examination. He reported the presence of streptococcus. An autogenous vaccine was prepared by Dr. L. W. Ladd and injected, but the patient died one week later with symptoms typical of meningitis.

1110 Euclid Avenue.

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**The Study of Drugs:**—In only a few schools do the students receive instruction which would enable them to point out to a patient in a few convincing words the fallacy of the use of the so-called lithia waters. It is certainly a remarkable fact that although the number and complexity of new drugs are increasing at a rate hitherto unknown, never in the history of medicine has the study of drugs been so neglected in many of the leading medical schools as at present. This is not altogether a question of poverty, for several of these schools have recently introduced excellent departments of bacteriology, preventive medicine, physiologic chemistry and the rather indefinite subject of "experimental medicine," although they have no department of pharmacology, or practically none. It would seem to require no argument to show that the students of such institutions are not receiving the education to which they are entitled.

Serious attempts to discover new remedies of value have been practically abandoned by the medical schools. The teaching of the fundamental facts concerning the drugs which every physician, be he an internist or a specialist in any branch, uses every day is left largely to chance. Is it not time for our medical schools to reinstate the study of drugs, even if some of the work in other branches has to be curtailed? The medical profession should recognize its part in the origination and perpetuation of such frauds as that of the "lithia waters," and our medical schools should realize that graduates of today in their knowledge of these important subjects are often relatively no better off, if indeed they are as well off, as graduates of two or three decades ago—*J. A. M. A.*

# The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and  
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

THE OFFICIAL ORGAN OF THE ACADEMY OF MEDICINE OF CLEVELAND

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BUSINESS MANAGER—MISS RUTH STONE

2318 PROSPECT AVENUE

Entered March 7, 1902, as Second-Class Matter, Post-Office at Cleveland, Ohio, under Act of Congress of March 3, 1879.

Organized January 20, 1902

Capital Stock \$6,000

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All remittances to the Journal should be made payable to The Cleveland Medical Journal.

Short notes upon clinical experiences or reports of interesting cases will be welcomed by the editors.

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## EDITORIAL

### Clean Water at Last

After having undergone numerous vicissitudes at the hands of experts and those who are not experts, Cleveland's "Water Problem" seems in a fair way to proper solution. The mayor, having changed his attitude, is to be congratulated upon having made the change so short a time after the presentation of his communication to the city council on April 7 and upon the personnel of his advisory commission. It would have been just as easy and would have had just as much political effect to appoint a commission of obstructionists. A typhoid curve which has gradually risen since the amount of chlorin was reduced, and an

unprecedented rise in typhoid incidence and mortality since the flood, in the absence of flies and flees, ought to be enough to make even an antifiltration water expert change his mind. We Clevelanders are supposed to be more than ordinarily endowed with "vision." If the vision had been properly on the job a year ago it would not have needed a flood to make us see what is now so apparent. Even hindsight is better than total blindness—and there is still room for foresight in the development of our filtration plans. That foresight we may confidently expect the mayor's filtration commission to use and the final outcome of their deliberations ought to be the best type of filtration available.

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#### Newspaper Medical Editors

In this issue, under the reports of meetings of the Academy of Medicine of Cleveland, appears the report of the Secretary of the Academy upon the Academy's campaign to obtain information concerning the appearance of physician's names in the newspapers. It is evident that newspaper notoriety is distasteful to the majority of the members of the Academy. There can be no hope for relief until each paper shall maintain upon its staff an editor whose duty and power it shall be to censor medical news—a plan to which the Academy has lent its support, with no very evident signs of immediate success. A great deal of what happens in a medical way is legitimate news, and in spite of the sins committed by the lay press the latter must be given credit for the diffusion of much that has helped in the education of the laity, especially in public health matters. The much sung "power of the press" would be vastly increased if its medical items were shorn of their sensationalism and if they came nearer to the facts. It is to be hoped that some day the newspapers will see the advisability of having their medical items less fanciful and more truthful than they can possibly be when left to the tender mercies of the editor trained in newspaper tradition and not in medicine.

Many of the mistakes made by newspapers are merely humorous butcheries of technical terms. Other items, apparently serious in intent, lose much of the value that they might have because of misstatements of facts. Still others, notably lay accounts of so-called cures, do actual harm. The sensationalism and the needlessly large headlines given to the Friedmann "cure"

by the group of newspapers to which the *Cleveland Press* belongs furnished a sufficiently recent example of harmful journalism. A signed feature article on "Sewage and Filtration" in the *Plain Dealer* of May 21 is a sample of the type of matter which, while honestly striving to give information, loses some of its force because the writer has not all of his facts well in hand. Those who have been formally introduced to *Bacillus coli* will not only fail to recognize an old and generally harmless friend under the designation of "the dread colon bacillus of typhoid fever," but they are apt to feel that such a slip minimizes the value of all that goes before and after. A little judicious blue penciling by qualified medical editors on the lay papers would save the medical profession much distasteful mention and would help to give the remaining medical items more verisimilitude than they usually possess.

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### A Commendable Newspaper Attitude

Not all newspapers make themselves ridiculous or reprehensible in the reporting of medical news; a few, those which employ trained medical writers, present such news in correct and authentic fashion, and that without having any of it lose its interest. Not all newspapers sell themselves to the patent medicine interests; a few have taken a stand which is all the more commendable because patent medicine advertising is easy money. The following, under the caption "Getting Well Because of the Patent Medicine, or in Spite of It!" from the Raleigh (N. C.) *Farmer*, is indeed a most unusual type of newspaper writing. Change the words "patent medicine" to "proprietary remedies," and it would put to shame all but a very small number of medical journals in this country. It contains also a few grains of thought for those physicians who pretend that they can "abort" infectious diseases or who, in arrogating to themselves recoveries in certain cases, forget that most infectious diseases are self-limited.

We have a letter from a good woman who objects to our denouncing the whole patent medicine business because her husband was sick, took a patent medicine, and soon got well, although a doctor had treated him before without apparent good results.

This a good illustration of the argument on which the patent medicine fakery rest their claims. A man is sick. He took a patent medicine. Afterwards he got well. Consequently—they say—the patent medicine cured him; he got well because of the patent medicine.

On the contrary, he probably got well in spite of it.

Take this simple fact: A man usually gets sick ninety-nine times before he dies; that is to say, there are ninety-nine cases of sickness

to one death. Even if no medicine or drugs of any kind were used, there would be ninety-nine times as many recoveries as deaths. Consequently the patent medicine fakers work on this theory; that with any given case of sickness there are ninety-nine chances in a hundred that the person will get well, and then that the patient will reason that because he took the medicine, the medicine cured him. We believe it was Dr. Charles W. Eliot, who said some time ago that the great American fallacy is the belief that because one thing happened after another thing, therefore the first caused the second. A man might as well say, "I had a very bad headache but read Prof. Massey's article on sweet potatoes and got well. Therefore, reading an article on sweet potatoes will cure the headache."

Keep this fact in mind: if a man is sick he usually gets well anyhow, unless nature is interfered with in its efforts to get straight again. If he uses a patent medicine, he will probably get well anyhow; but it will take more medical knowledge than the average man possesses to know whether he got well because of the patent medicine or in spite of it. The truth is that most of the nostrums are compounded so as to have very little effect one way or another, the presumption being that nature will effect a recovery anyhow and the medicine, as we have just said, will get the credit. Those patent medicines that do appear to give relief more or less quickly usually contain morphine or whisky or some habit-forming drug; or else, as in the case of headache medicines, have a ruinous effect upon the heart so that the net effect is that the man swaps a mild case of headache for a bad case of heart disease.

As the small boys would say, we are going to "stick by our stickums." There may be a few good preparations in the bunch, but they are scarcer than four-leafed clover; and the only safe rule is to let the whole gang of patent medicine fakers severely alone.

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### Minting Misery Into Money

With the projected organization of an exploiting company in each state—at a profit to the archexploiter estimated by some to be as high as \$1,925,000—that modern South Sea bubble, the Friedmann "cure," may be considered to have reached the bursting stage as a scientific achievement. Outside of the pocketing of his gains by Doctor Friedmann, there is little left now except the reviling and condemnation that will come from those sensational newspapers that shed so much good printer's ink in his behalf in the beginning. Worse than the uselessly spent money, which will come, of course, from the suffering, is the long train of blasted hopes, hopes foredoomed to worse than disappointment from the very moment that a group of American newspapers announced the "cure," boasting of the "beat" that they had scored. Without their aid the "bamboozlement" of the public would not have been possible. How far they were prepared to go in their enthusiasm—if such it was—was illustrated by the desire of the local representative of that class of newspaper to send a city official abroad to "investigate" the Friedmann "cure." That the proposition was entertained at all—those with memories that



can go back less than half a year will recall that the Council of the Academy of Medicine was asked for an endorsement—must appear, in the light of more recent events, a sad commentary upon that which usually goes by the name of human intelligence. To the financial toll that will be taken from the suffering by the authentic Friedmann “cures” must be added the sums that will flow into the pockets of those charlatans who will exploit their own fifty-seven varieties of turtle soup.

The only outstanding feature in the whole unfortunate business has been the “show us” attitude of the medical profession. And in the beginning this attitude was looked upon as a vindictive one. Now that the storm has broken, many newspapers have gone to the other extreme and are heaping contumely upon the profession because it did not warn the public. And this is in the face of the fact that all the better American medical journals have from the beginning done nothing but advise the people to wait for uncontestable proofs. Mr. P. T. Barnum, were he alive today, would have ample reason to revise his opinion of the “sucker” birth-rate—several must be born every second instead of only one a minute. Our grandchildren will read with astonishment the headlines that announced the Friedmann “cure” and the wonderful document prepared at the request of and submitted to the United States Senate. And in the meantime their parents—and even their grandparents—will be spending money.

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### The Shameful Aftermath

If the Friedmann “cure” were a real cure for tuberculosis, its commercialization would be bad enough. Since its curative value has not been scientifically established, since the use of an avirulent strain of the tubercle bacillus may be associated with positive danger, we shall leave to the individual reader the task of attaching to Doctor Friedmann’s course the proper terminology. If one were very, very charitably inclined and if one knew nothing of the world and its ways, one might credit Doctor Friedmann with the virtue of sincerity. Among the sins which even charity will not cover is that unnamable one which is causing certain physicians to take advantage of the notoriety and free advertising which the Friedmann “cure” has received at the hands of a misguided lay press. Granted that they are injecting a strain of supposedly avirulent tubercle bacilli, such a procedure upon the part of those untrained in laboratory technic is enough to

make one shudder. Even if the curative value of such strains had been proven beyond a doubt, their use by those who cannot and do not from time to time experimentally determine the virulence or avirulence of the organisms used is little short of criminal. And if, instead of living and supposedly avirulent bacilli, they are using something with fewer potentialities of danger merely for the purpose of making financial hay while the sun of newspaper notoriety is still shining, then they are past masters in medical charlatanism. In either case the practice of medicine is not yet sufficiently safeguarded.

To judge from the clippings which have come to us from several localities, Ohio is not going to lag behind in this shameful business. From one paper we take the following copy of a contract said to be used by one physician. The name, present in the newspaper copy, we have left blank :

"I, the undersigned, agree to pay Dr. .... \$25 for each injection of tubercular serum used by Dr. ...., prepared by the Bacteriological Institute of Berlin. This is the same serum said Dr. .... saw used in clinics at Berlin and claimed prepared from the original Friedmann turtle, and he disclaims that this serum is obtained from Dr. Friedmann."

The intent of the final clause is obvious. Yet this same physician is credited in another paper with the following interview (the italics are ours) :

"The Ohio papers printed a communication Saturday, purporting to be from Dr. Friedmann to the state board of health, and stating that there was no Friedmann serum in Ohio. As a matter of fact, I never claimed to have secured the serum I use from Dr. Friedmann. As I have informed every patient I have treated, the serum comes from the bacteriological institute of Berlin, Germany, *the only laboratory authorized by the discoverer of the cure to manufacture it.*

*"This is the very identical serum used by Dr. Friedmann in his treatment of tuberculosis and I can establish its authenticity beyond the slightest doubt."*

Reputable physicians who have complained to the State Medical Board are accused of jealousy by the physician in question. It is most unfortunate that a few individuals can bring an entire profession into disrepute. When a few sheep are so awfully black, the laity cannot be blamed for considering the entire flock somewhat tinged.

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**Humanity**—I think sometimes that the science of humanity today is in about the state of darkness that the natural sciences were when Linnaeus and Cuvier and Lamarck began groping for the great laws of natural unity. Most of the human race is still groaning under the belief that each of us is a special and unrelated creation, just as men for ages saw no relationships between the fowls of the air, the beasts of the field, and the fish of the sea—David Grayson: *The Friendly Road*.

## Department of Therapeutics

Conducted by J. B. McGEE, M. D.

**Neuritis:** William Martin, in the *Therapeutic Gazette* for March, considers the treatment of neuritis, advocating treatment along the lines of physiotherapeutics rather than that of drugs. The cases that most frequently come to our notice are those of the milder type. In these there are no degenerative changes. In the sciatic form there may be a history of gout or rheumatism. The treatment of neuritis may be considered from both the medicinal and physiotherapeutic standpoints. The usual form of treatment by drugs has been most unsatisfactory, particularly when the sciatic is involved, and it is natural that the physician should look for other methods of treatment which offer some hope. That neuritis is in most cases cured can be easily demonstrated. There may be a small number of incurable cases, but even some of these are amenable to benefit if treated by physical methods. In treatment we must not lose sight of the causative factors of each case, for these are often guides to a successful outcome. If occupation is a cause, wherein pressure upon a nerve or set of nerves acts as the factor, the first thing to do is of course to stop the work, at least temporarily, giving the nerve a chance to rest and recover. In those cases of neuritis associated with other diseases, it is important to treat the systematic fault at the same time that the neuritis is being attended to. It is not unusual to have neuritis in cases of toxic hypertension and here it is very essential to care for this high blood-pressure by the use of the high frequency current, by the autocondensation method. Diet here plays an important part, for the proteids must be very largely, if not entirely, cut out. To treat neuritis successfully, one must be willing to recognize all forms of treatment that have proven of value, even though this may lead to radical departures from all of the laid-down methods of the past. The electrical currents cannot be used empirically any more than other methods. Each case requires a careful study of its needs; otherwise one is doomed to miserable failure. A large number will respond to the static wave current very promptly, while others may be made uncomfortable by its use. With this may be used with advantage the 500-candle-power lamp of the leukodescent type for the hyperemic effect. Those cases which do not respond to the static wave often do well under the high frequency current. This can be applied by the thermopenetration method, the smaller plate being applied over the seat of pain, and the indifferent plate over a part opposite or nearly so. The length of treatment will depend largely on the case, fifteen or twenty minutes being enough in the average case. The amount of current varies in the different cases also. He has found that few will take more than 650 to 1,200 m.a., and the latter only in some rather severe sciatic types. In cases in which an enlarged prostate plays a part, we must treat by the static wave current applied *per rectum* with the metal prostatic electrode. Some prefer the vacuum tube electrode either with the static or the high frequency current. They both have their value, although he prefers the static wave applied through the metal electrode. In cases which do not respond to the usual methods, the constant current may be used, either in the usual way or by the ionic medication method. Those who have had a large experience with the latter method are very enthusiastic.

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**Cerebrospinal Meningitis:** In the *New York Medical Journal* for March 22, Miley B. Wesson reports a series of atypical cases of cerebrospinal meningitis. The most constant symptoms found were a relative rigidity of the neck, Kernig's sign, vomiting and fever. The first afebrile case was cured after five doses of serum; the second one received only one injection of 10 ccm of serum, further treatment being refused. Two patients had hyperpyrexia, with temperatures of

107° and 107.8° respectively. The former died within 12 hours, but the latter had the temperature lowered to 103°, where it remained until death two days later. The mortality of this series of cases, thirty in number, was practically 25 per cent, including those moribund when seen. The prognosis was good in all cases with a cloudy spinal fluid, in which treatment was begun early in the disease, while it was uniformly bad in the four cases with clear fluid, irrespective of promptness in administering serum. The Mexicans, in spite of their squalid surroundings, seemed to be more resistant and responded to treatment better than the whites. All serum was given by the gravity method. If too much serum has been injected or if the serum has been injected with too great rapidity, there will be complaint of pain in the legs if the patient is conscious, or twitching if he is unconscious. The untoward effects from the serum were collapse and urticaria. Collapse is best treated by siphoning back the serum and keeping up artificial respiration; small doses of atropin and epinephrin are of help. No treatment was used for the urticaria except sponging with a 10 per cent solution of menthol in alcohol to relieve itching. He concludes that: (1) The only early constant sign is a *relative* rigidity of the neck. (2) A clear spinal fluid indicates a bad prognosis. (3) The temperature is a misleading criterion as to the state of the disease; the treatment should be continued until the spinal fluid is sterile. (4) The method of injection should be by gravity; the amount of fluid withdrawn bears no relation to the size of the dose of serum, which should be determined by; (a) the rate of flow of the serum; (b) the amount of discomfort caused the patient; and (c) the quantity that can be given without using pressure. (5) Serum should be given at least once a day, in severe cases every 6 hours. (6) Vigorously treated cases, if seen early, will have no bad after effects.

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**High Pressure:** In the April number of the *American Journal of the Medical Sciences*, David Riesman treats of high arterial pressure. Clinicians differ as to the exact dividing line between normal and abnormal pressure. His own feeling is that, other things being equal, a pressure of over 145 is abnormal; at the age of 50 years a pressure of over 150 is pathologic. This does not mean that the patient is gravely ill, but it does mean that such a patient should be kept under observation and the cause of the rise in blood-pressure should be ascertained, for when it comes to arterial disease—particularly hypertension—prevention is better and easier than cure. There is a group of hypertension cases that is of interest and importance, the group without notable thickening of the superficial arteries and with no renal changes of importance. It is common in men and comprises, in his experience at least, a rather large proportion of women of middle age. The treatment of hypertension is of great practical importance, and here there is as little unanimity of opinion as in most other subjects of medical practice. It should be borne in mind that the high pressure, like much of nature's work in the body, is compensatory and reparative. Hence any attempt to depress the blood-pressure to its normal for the individual is irrational and harmful. All that we may safely do is to lower the blood-pressure when excessively high to a point where symptoms cease and to keep it there. Rest is important, mental rest being more important than physical, though the latter has its place. It is astonishing what relief from the "weariness, the fever and the fret" will accomplish. The diet is of importance, but more from the point of view of quantity than of quality. A valuable admonition is that the patient should eat a small evening meal; he will rest much better. Electricity in the form of the high frequency current (autocondensation) has a growing number of advocates. As for drugs, even the laity are familiar with the value of the nitrites and are no longer frightened when nitroglycerin is prescribed. When nitroglycerin fails, sodium nitrite in doses of from  $\frac{1}{2}$  to 2 or even 3 grains may be

useful. The nitrite group is useful only to relieve symptoms. They should be continued only when the pressure is rising, in angina pectoris or marked dyspnea. He has an abiding faith in the value of venesection.

**Valerian:** Valerian is one of our drugs not so often used perhaps as its virtues warrant, more perhaps because of its disagreeable odor than from any lack of therapeutic power. S. E. Earp summarizes its therapy quite concisely in the March number of the *Indianapolis Journal*. Doctor Earp states that the preparations most frequently used are the tincture and the ammoniated tincture; the former with a strength of 20 per cent, dose 1 to 2 drams; and the latter made from the powdered root 20, aromatic spirit of ammonia to make 1000 parts, dose  $\frac{1}{2}$  to 2 drams. *Valeriana officinalis* is cultivated in this country but is a native of Great Britain. The volatile oil yields valerianic acid, which increases as the dry product of the root grows older. The burning effect on the mucous membrane is unpleasant and the odor not at all inviting. The artificial acid made from amylic alcohol differs somewhat in composition and is probably inferior to the natural product. To disguise the odor, he recommends gaultheria and peppermint as probably the best flavors. Simple elixir is also one of the best menstrua, especially if containing a good oil of orange. In cases of delirium tremens, cough of a reflex origin, hysteria, insomnia, and painful conditions with undue nervous symptoms, he is in the habit of combining piscidia erythrina with valerian, although aware of some slight points of incompatibility. The union of the two, however, would rather be synergistic and therapeutically indicated in the cases noted. He usually prescribes:

Tinct. valerianae ammon. 60

Tinct. piscidiae

Elix. simp. aa 30

M. Sig: One dessertspoonful every 2 to 6 hours.

In nervous disorders of women, especially nervous headache, and in hysteria and hystero-epilepsy, he advises Shoemaker's suggestion of combining the compound spirits of ether and tincture of humulus with the valerian. Some years ago valerian was used empirically and clinical evidence was the only sanction for its administration. When injudiciously given toxic effects are sometimes shown by dizziness, vomiting, hiccough, eructations, diarrhea and sometimes paralysis of the nerve centers. These, however, need not occur if ordinary caution is observed, and especially since they are neither constant nor certain. Briefly the physiological action may be said to be confined to its action as an antispasmodic. Soon after its administration there is a glow of warmth in the stomach, in fact an exhilaration, and it has the property of improving the appetite and correcting some of the causes of the impairment of digestion. It will cause a slight stimulation to the circulation, and it has a sedative action on the spinal cord.

**Strychnin:** David Marvin, in the April number of the *Archives of Internal Medicine*, presents a preliminary report on the effect of strychnin and digitalis on man, these drugs being administered in therapeutic doses to normal young men. He calls attention to the fact that textbooks on pharmacology and highly scientific articles pertaining to this subject are based largely on experimental evidence furnished by the lower animals. In nearly all, the observations on man have been on a single case or on a number of such cases under different conditions, thus making the results of little value. It is only when conditions are identical that a composite curve becomes of value. He questions the advisability of accepting in all cases the evidence of an effect on respiration, pulse and blood-pressure furnished by the lower animals as satisfactory proof of a similar action in man. Strychnin and digitalis are two important drugs, the effect of which seems to have been in doubt, as voiced by both pharma-

cologists and clinicians, the majority of pharmacologists claiming that strychnin and digitalis do not increase blood-pressure, while some clinicians claim to have seen such effect. His summary as to the action of strychnin is: (1) No effect on the rate of respiration except from 1/20 grain, which produced an average increase of one per minute. This effect was not constant; a drop occurred occasionally, which was due largely to individual fluctuations occurring at the same time and without apparent cause. (2) A slowing of the pulse-rate from all doses. (3) A marked increase in blood-pressure from 1/30 and 1/20 grain; practically no effect from 1/40 grain. Digitalis: (1) No effect on the rate of respiration. (2) A slowing in the pulse rate of eight beats per minute. (3) A marked increase in the blood-pressure, which reached its maximum in 5 hours, gradually returning to normal after 50 hours. (4) A persistence of action for 50 hours from a single dose of 14 minims of a standard tincture of digitalis.

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**Solanin:** In the April number of the *American Journal of Clinical Medicine*, Thomas G. Atkinson treats of solanin versus the bromids. There is a group of conditions in which the cerebral cortex is the seat of muscular spasms, either as the originating center or the reflex arc. Always in this group of conditions it is a process which is, for the time being at all events, unreachable through the peripheries. And the only way to control the spasms is to sedate the cortex so that it is no longer hypersusceptible to irritation. The bromids hold out a tempting means of accomplishing this kind of sedation, and for many years they have offered practically the only effective means. And, in spite of their drawbacks, we have used them in default of anything better. This plea, however, is no longer valid, as there is at hand a therapeutic agent which yields all the desirable effects of the bromids with none of their objectionable properties. This is solanin, an alkaloid glucoide commonly derived from the young shoots of the potato. It is a perfect cerebral sedative, quieting the irritable brain without in any way tearing down the cortical cells. In any event, he is convinced that under long continued use, together with its sedative effect, the patient becomes more capable of genuine mental effort. It is, he asserts, definitely indicated in all conditions where the cerebral cortex is the seat of muscular spasms, wherever these spasms may happen to manifest themselves. Hence it is a sovereign remedy in epilepsy, infantile palsies, pertussis, spasmodic asthma, neuralgia, myalgia, cramping of the muscles of the extremities, and dysmenorrhea, where these are due to cerebral tension; and contrariwise these are the only conditions in which its benefits must be looked for. The most typical of the conditions calling for this form of therapy is epilepsy, in which bromids have so long been used and abused. In practically all cases, the intervals between seizures are progressively lengthened and mentality correspondingly brightened. In giving solanin, saturation to the desired point should be secured as quickly as possible by doses of 1/12 to 1/6 grain. This sedative effect should be maintained by doses of 1/54 grain 3 times a day. It may be given with safety to the youngest child. The lethal dose is probably around 8 or 10 grains.

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**Bronchopneumonia:** Beverley Robinson, in the *Medical Review of Reviews* for March, comments on some clinical features and indications for treatment in bronchopneumonia. One of the most distinctive features of bronchopneumonia is its migratory character. One day the lobules affected in smaller or larger number may be found at the base of the lung posteriorly. A day or two later the base of the lung may be relatively free and the apex of one or the other lung is specially involved. He knows of no way to abort or shorten bronchopneumonia by any system of treatment, nor does he know of any drug which is invariably of great value. Drugs, like food, must be given according to

circumstances, in proper form, at suitable intervals, with very great moderation and circumspection, always seasoned with brains. Treatment of the cough must vary according to circumstances and the other symptoms. When sputa are thick and tenacious, tablets of ipecac 1/10 grain, given frequently, control it best. Should nausea result, they must be temporarily intermitted. Ipecac may be helped with codein 1/8 grain, more or less frequently repeated. Inhalations of compound tincture of benzoin frequently help, in the beginning, to lessen bronchial irritation and help loosen sputa; later beechwood creosote is most valuable. In a severe case, both benzoin and creosote should be added to the boiling water in the croup kettle or saucepan and the water allowed to simmer many hours of the twenty-four. To quiet an irritable stomach nothing equals milk of bismuth among drugs; among foods he believes panopepton has saved life. Tincture of iodine to the chest is the best of all local resolvents and counterirritants. Quinin in moderate doses does more good and less harm than any other single drug against the probable or possible poison of the disease. For a failing heart caffeine, strophanthus and coca are his sheet anchors. Much worthless coca is on the market, but the best kind given in the right way is simply invaluable. When it cannot be had, coffee or tea may take its place. In some cases a cup of very hot black coffee, with or without the best brandy or rum, is invaluable.

### New and Nonofficial Remedies

Since publication of *New and Nonofficial Remedies, 1913*, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies:"

Polyvalent Acne Vaccin—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 5, 1913, p. 1074.*)

Antimeningitis Serum—A polyvalent serum prepared from the blood of horses immunized to the meningococcus of Weichselbaum. Sophian-Hall-Alexander Biologic Laboratories Kansas City, Mo. (*Jour. A. M. A., April 5, 1913, p. 1074.*)

Polyvalent B. Coli-Communis Vaccin—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 5, 1913, p. 1074.*)

Refined and Concentrated Diphtheria Antitoxin (Antidiphtheric Globulin—Put up in a syringe container. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 5, 1913, p. 1074.*)

Polyvalent Gonococcus Vaccin—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 5, 1913, p. 1074.*)

Polyvalent Meningococcus Vaccin—Marketed in packages of three ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 5, 1913, p. 1074.*)

Polyvalent Pneumococcus Vaccin—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 5, 1913, p. 1074.*)

Polyvalent Pyocyanus Vaccin—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 5, 1913, p. 1074.*)

Polyvalent Staphylococcus Vaccin—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 5, 1913, p. 1074.*)

Polyvalent Staphylo-Acne Vaccin—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 5, 1913, p. 1074.*)

**Polyvalent Streptococcus Vaccin**—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 5, 1913, p. 1074.*)

**Polyvalent Typhoid Vaccin**—Marketed in packages of three ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 5, 1913, p. 1074.*)

**Antirabic Vaccine**—The Antirabic Vaccine, formerly manufactured by the American Biologic Company, Kansas City, Mo., (see *New and Non-official Remedies, 1913*), is now manufactured by the Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 5, 1913, p. 1074.*)

**Antigonococcic Serum**—A highly immune polyvalent serum, prepared by immunizing horses against many strains of gonococci. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 19, 1913, p. 1227.*)

**Antistreptococcus Serum**—A polyvalent serum obtained by immunizing horses with increasing doses of streptococci extract and subsequently with live cultures. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 19, 1913, p. 1227.*)

**Normal Horse Serum**—The serum of normal horse blood obtained in a sterile manner and passed through a Berkefeld filter. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (*Jour. A. M. A., April 19, 1913, p. 1227.*)

The following articles, all products of the Lederle Antitoxin Laboratory, New York, have also been accepted: Coli Vaccine; Gonococcus Vaccine; Pneumococcus Vaccine; Staphylococcus Vaccine; Staphylococcus Albus Vaccine; Staphylococcus Aureus Vaccine, Streptococcus Vaccine; Typhoid Vaccine; Typhoid Vaccine for Prophylactic Treatment.

**The Turtle**—The Germans refer to us as the "Land of Unlimited Possibilities." We surely are. An obscure German physician, after failing to be credited in his own country, has been able to come to this and work a very successful game of high finance. Thanks to the unlimited advertising he has had from our newspapers. Dr. Friedrich Franz Friedmann is reported to have sold his alleged serum "cure" for \$1,925,000. It is a tidy sum. To evade the Federal law, there are to be thirty-six separate companies to exploit the "cure" in as many states. And note that one year ago Friedrich Franz was a small, if not modest, practitioner in Charlottenburg, a suburb of Berlin, with neither fame nor scientific reputation. His sole contribution to medical literature, so far as we can find, concerned a similar "discovery" about 1904. This was that strains of tubercle germs from turtles were harmless for man and were a curative vaccine. The method was tested and dropped. What he now has, Dr. Friedmann has so far refused to disclose. It apparently involves the injection of living germs into the system, of supposedly attenuated bacilli—a process which Pasteur and many others found extremely dangerous. And it has been flatly asserted that these are the same old turtle strains. We prefer to hope that Dr. Friedmann's "cure" is simply turtle soup. We say this without levity, first, because it is the best soup we know of, and, secondly, because an abundance of rich, palatable food, combined with rest and twenty-four hours a day in the open air, has so far proved the only known remedy against this much-dreaded disease.—*Collier's.*

**A Human Marvel**—Our idea of a physical marvel is a human being who does not have any of the symptoms in most of the patent medicine circulars—*Youngstown Telegram.*

**Two of a Kind**—One hopes that Dr. Friedmann will not leave America without paying a visit to his distinguished colleague, Dr. Cook.—(*Cleveland Plain Dealer.*)



## Academy of Medicine of Cleveland

## ACADEMY MEETING

The one hundredth regular meeting of the Academy of Medicine was held at the Cleveland Medical Library, Friday, April 18, 1913, the President, H. L. Sanford in the chair.

The Secretary, J. E. Tuckerman, presented the following report upon the inquiry conducted by the Council of the Academy into the occurrences of physicians' names in the newspapers:

On July 24, 1912, the Council directed the Secretary to send out letters of inquiry to the members of the Academy whenever their names appeared in the newspapers in connection with any medical subject or in connection with any news item mentioning them in their professional capacity. From July 24 to April 1, inquiries were sent to ninety-eight members. Answers were received from seventy-eight.

All who replied said that their names were used without their consent. Of these, seventy were not aware that any newspaper was mentioning them in connection with the matters published; two had refused to give information when asked; six had given the information, requesting that their names be withheld and one had been interviewed over the 'phone by a reporter who represented himself as the injured child's father.

During this same period the names of physicians who were not members of the Academy appeared in the papers a total of ninety-seven times. No inquiries were sent to these physicians.

Grouped by months and under the newspapers in which they appeared the names of members of the Academy were mentioned one hundred and seven times, as follows:

	July	August	September	October	November	December	January	February	March	Total
Leader .....	0	15	7	4	0	0	1	7	3	37
Plain Dealer .....	1	2	4	5	4	1	5	5	1	28
Press .....	4	2	3	3	1	1	0	5	1	20
News .....	1	5	2	2	1	1	3	3	4	22
Totals .....	6	24	16	14	6	3	9	20	9	107

The difference between this and the total number of inquiries sent out is explained by the fact that sometimes the item appeared in more than one newspaper of the same date.

Arranged by periods of three months, the number of inquiries were as follows:

July, August, September.....	41
October, November, December.....	25
January, February, March.....	32
Total .....	98

The number of appearances of names of nonmembers during the same periods were as follows:

July, August, September.....	23
October, November, December.....	47
January, February, March.....	27
Total .....	97

Aside from newspaper mention occurring in connection with the official proceedings in public offices such as the Probate Court, the Health

Office, the Tuberculosis Dispensary and the Coroner's Office, the names of but seventeen members appeared in connection with more than one such item. Of these, twelve appeared in two items; four in three and one in five.

An analysis of all the data at hand shows: That only occasionally is the name of any one physician mentioned more than once or twice in a year. That individuals connected with public offices receive almost constant mention. That generally the mention of a physician's name is without his knowledge, and usually without his consent, and in some instances in spite of his request to the contrary. That fewer of these articles are published when the papers are full of other matters, as in the fall, during the period of national and state elections, etc. That many of the so-called medical articles appearing as original and accredited to physicians are taken bodily from medical publications or from reviews in papers of other cities, and are given a local setting making it appear that an actual interview was granted the newspaper. In many cases the interviews are fabrications of the reporter's imagination.

The difficulty in endeavoring to eliminate such medical notices is due mainly to the attitude of the press. Accustomed to being paid for advertisements and even, at times, for press notices, it seems impossible to get the editors to realize the embarrassment, and often the actual detriment to the physician which such undesired publicity causes. Newspapers in general seek the novel things in medicine, things subject to sensational interpretation; they try to give the item a personal element by using the names of well-known physicians when plausible; and they demand headlines rather than sense. While deriving revenue from dubious advertisements, they do not really seem to want medical news to be made reliable. Reliability in newspaper reporting of medical matters will only come when the newspapers recognize the necessity and employ a medical editor with power to actually edit. The Council of the Academy has been trying for some time past to bring about such an addition to the editorial staff of our newspapers, but so far with very indifferent results.

Finally, this inquiry shows that, contrary to a somewhat common notion, there is no concerted effort on the part of the members of the Academy to get their names into the newspapers. In closing the Secretary wishes to thank those who by their prompt replies have aided this inquiry.

R. K. Updegraff, in discussion, said that the proof that certain physicians solicit newspaper mention cannot be obtained, because there are only two parties to the transaction, the editor and the offending physician. The report had been submitted to the Academy at the request of the Council in order that the Academy rather than the Council should decide whether the campaign of inquiry should be continued.

N. Rosewater believed that the names of medical public officials appear all too frequently in the newspapers, often in connection with alladvised statements undoubtedly without consent. No medical public official should permit the use of his name except over his signature.

J. J. Thomas moved that the inquiry be continued.

J. E. Tuckerman, in discussion of the motion, felt that the Academy had gained all the information to be gained in this way. Purely for the gathering of information, continuation of the inquiry seemed hardly worth while. It might help in the Academy's attempt to have the local papers submit medical articles to medical editors. If all members whose names appear in the papers against their wishes would protest directly to the papers, the inquiry might bear fruit.

The motion to continue the inquiry was carried.

The regular program was as follows:

1—Tuberculosis as a Public Health Problem, by R. H. Bishop, Jr.

The multiplication of organizations for the fight against tuberculosis is evidence of the determined war being waged against a common foe. The demands for financial aid from private philanthropy is constantly

increasing. Private charity cannot, however, eradicate tuberculosis. This must be done by the health department, either local or state. Unfortunately the health department has no standing in the mind of the public and cannot therefore aid so well as private charities. This is because those in charge of municipal health departments often do not have the proper social vision. The best that can be hoped for is not immediate relief from tuberculosis, but a prolonged campaign which, largely by education, shall overcome the menace so that the conditions which are important factors in the causation of the disease may gradually be eradicated.

In Cleveland, cooperation between the Antituberculosis League and the Health Department has shown the beneficial results to be obtained from such cooperation. The work of the Division of Tuberculosis of the Health Department has shown that 98 per cent of the cases reported by physicians are sputum positive. The number of cases reported by physicians and dispensaries is constantly and gradually increasing. During 1912, of the deaths reported due to tuberculosis, only 14.9 per cent had not been reported previous to death. The average length of time the fatal cases were known to the department was about eight months. From the work of the department it would appear that the number of deaths multiplied by three would give the number of active, dangerous cases. It must be remembered that the advanced, bedridden patient is not the real menace if he is visited by nurses. The working, sputum positive cases is much more dangerous. Further needs are increased hospital and sanatorium facilities, and more complete recording, so that each patient may be visited and educated.

2—The Treatment of Diabetes Mellitus, with Observations upon Special Topics Connected with the Disease, By Elliott P. Joslin, Boston.

The treatment of diabetes today closely resembles that laid down by Naunyn. The basic principles of this treatment are that neglect of the disease leads to progression, and that keeping the urine as nearly free of sugar as possible increases the tolerance to carbohydrates and tends to arrest the disease. Various methods have been proposed for making the urine sugar-free, one of the oldest being the mere limitation of food; today, it is well recognized that excessive food should be avoided. Most cases of diabetes are mild, certainly at the onset, and at this stage restriction of food quickly causes the urine to become sugar-free. Even in severe cases, the sugar may be markedly decreased by restricting the carbohydrates over longer periods. In those cases in which carbohydrate restriction does not lead to a disappearance of sugar, the removal of both carbohydrates and proteids, the "vegetable day," leads to results. If this fails, the "starvation day" usually succeeds in causing the urine to become sugar-free.

Diabetes is a chronic disease and in any chronic disease one must have in mind the problems to be met and must have definite ideas as to how to meet them. The treatment of diabetes requires persistence as its chief element. The diet which has been found to give the best results is not complicated, contrary to the belief of some physicians. Whatever treatment is laid down must be followed faithfully. It must be known whether the patient excretes all the carbohydrate ingested, or also some formed from the proteids taken in. Oatmeal in small quantities, to which much cream can be added, is one of the most helpful substances in the treatment of diabetes, since the carbohydrate content is low. The mystery of von Noorden's oatmeal has not yet been cleared up. Some have supposed that the oatmeal contains substances which act upon the liver to increase the carbohydrate efficiency of the latter. Others, that it acts upon the kidney in such a way as to render it less pervious to sugar. And still others, that the oxidation of the carbohydrates of oatmeal in the intestines is so rapid that not sugar but its decomposition products are absorbed. One factor which makes oatmeal valuable is its low proteid content. The oat-

meal cure is helped by a "vegetable day" before and after it. In the work at the Carnegie Nutrition Laboratory the question has presented itself whether the carbohydrate of oatmeal is actually oxidized in the body. It has been found that oatmeal in the diabetic leads to little change in the respiratory quotient, which should approach 1 if the oatmeal carbohydrate were oxidized like other carbohydrates. Animal albumin, meat, must be excluded from the dietary of the diabetic, and this knowledge is one of the most important additions to our dietetic treatment.

The chief disadvantage of the oatmeal treatment is that the taking of what the patient knows is a large amount of carbohydrate for a limited time leads to a breaking away from the strict diet laid down for him. For this reason the oatmeal cure should be used only to render the urine sugar-free when other methods have failed. Hospital treatment is not necessary, except for a period of two or three weeks for the purpose of training the patient. What must be done is to educate the patient to live at home upon the proper diet.

The beginning of acidosis can be determined by the experienced by inspection as readily as by urine examination. The beginning of diabetic coma can be detected by changes in the respiration. In acidosis and impending coma, it is important that the diabetic regime be not departed from, in order that the sugar tolerance may not be reduced. By the prevention of starvation one can usually prevent coma. As soon as severe acidosis appears the patient must be closely watched from day to day. Alkali may be increased to 30 grains per day, rarely more, lest the digestion be upset, which would make conditions worse. When coma is imminent the regimen may be broken into by giving oatmeal gruel, and the alkali may be increased to large amounts, given by rectum to prevent dilatation of the stomach. Large amounts of water must be given, by infusion, if necessary. The treatment of actual coma is not what might be wished.

An important question is that of surgical operations upon diabetics. Surgery in diabetics is not dangerous because of the sugar which may be present, but because of the starvation which may occur. Diabetics who are to undergo severe operations should have a "vegetable day" a week before operation, another the second day before the operation, and an "oatmeal day" on the day preceding the operation. This is to store as much carbohydrate as possible, to tide the patient over the starvation incident to operation.

J. J. R. Macleod, in opening the discussion, pointed out that the greatest progress in the therapy of diabetes had been made by those conversant with the physiology of carbohydrate metabolism. Work of the type reported will lead to real advancement. One of the important additions to our knowledge of diabetes resulting from the work of the Carnegie Nutrition Laboratory was the increase in metabolism and pulse-rate in diabetics, with, at the same time, a decreased resistance.

G. N. Stewart believed that from the work done at the Carnegie Nutrition Laboratory, undertaken primarily from the standpoint of the treatment of diabetes, some insight would be gained into the causation of the disease.

J. P. Sawyer said that it has come to be recognized that by cooperation between the physician and the diabetic the life of the latter can be prolonged and his comfort can be increased. He agreed that starvation and vegetable days are important in the treatment of diabetes, but had been accustomed to go even beyond a single starvation day, especially in those cases with gastrointestinal disturbances. This often helps to restrain the appetite, often otherwise uncontrollable, for starchy things.

N. Rosewater felt that a much more liberal diet could be given in diabetes than is usually the custom. In many cases the gouty or lithemic diathesis seems to lie at the bottom of the condition, and in these he gives boiled meats, that is, meats freed of their extractives; with this

exception there is little restriction in the diet as regards bread, or as to sugar in tea and coffee. Rest is essential, and this is procured by bandaging the abdomen; at the same time large amounts of water are given.

### EXPERIMENTAL MEDICINE SECTION

The sixty-seventh regular meeting of the Section was held at the Western Reserve Medical College, Friday, April 11, 1913, the Chairman, O. T. Schultz, in the chair.

The program consisted of a series of studies upon the epidemiology of whooping cough, measles, scarlet fever and diphtheria in Cleveland during the year 1912.

#### 1—Whooping Cough, By R. A. Pease.

The greatest incidence was during the three summer months, the next greatest during the spring months. Tabulations for the past eight years show a similar seasonal incidence, which is contrary to the statistics usually given. More females than males were reported ill of the disease, but the male fatality was over twice as great as that among females. The greatest number of cases and the greatest number of deaths occurred during infancy, that is, up to 4 years. The youngest case recorded was an infant of 7 days, which died; the oldest was a woman of 35 years, in a family in which eight cases were reported upon the same day. Study of the statistics for the past 12 years indicates that there has been a gradual decline in the incidence of whooping cough; 1911, during which the disease was epidemic, is an exception to this statement. Comparison with other cities of approximately the same size as Cleveland shows that Cleveland ranks third in the mortality from whooping cough. The chief causes of death, as reported, were bronchopneumonia, convulsions and exhaustion. Comparison with the other infectious diseases shows whooping cough to have the lowest incidence, but to rank third in mortality. Below and during school age it ranks second in the number of deaths.

#### 2—Measles, by A. B. Grossman and W. E. Dwyer.

The crest of the incidence curve was reached in May. There was a gradual rise from January to May, then a sudden drop, followed by a gradual rise to December. 81 per cent of the cases were below school age. 76 per cent of the cases occurred during the school year, 24 per cent during vacation. The mortality was greatest in infancy, only one death being reported in children of school age. The sex distribution was approximately even, both as to incidence and deaths. No deaths from measles were reported among negroes. Comparison with other cities showed Cleveland to have the lowest measles death rate.

#### 3—Scarlatina, by J. G. Frey and W. J. Rogers.

Most cases occurred in the ages from 2 to 8 years, the decline beginning at 6 years. The oldest case reported was 43 years of age. The mortality was greatest between the ages of 1 and 5 years, next in the period from 5 to 10 years, and very slight afterward. Of the 99 fatal cases, all of which were white, 57 were males and 42 were females. Most cases occurred between January and May, then there was a slight decline during June, with a marked fall during the vacation period. The gradual rise began with the opening of school. The deaths were most numerous in the period from April to July.

#### 4—Diphtheria, by H. C. King and R. C. Gill.

The textbooks say that diphtheria tends to occur in epidemics, the community being relatively free for some years after an epidemic. The worst epidemics are said to follow seasons of dryness. During 1912 diphtheria was epidemic in Cleveland. The rise in the incidence curve began in September and reached its maximum in December. 49 per cent of the cases were males. 51 per cent females. 26 per cent of the cases were below school age, 68 per cent of school age, 6 per cent were adults. Although only 6 per cent of the cases were among adults, diphtheria was more frequent among adults than the other diseases

studied. The mortality was highest in October. In comparison with other cities, Cleveland had the lowest diphtheria mortality. Since the order requiring two negative cultures for release went into effect the average time of persistence of the bacilli in the throat has been found to be 14.8 days; the longest period was 58 days.

#### OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The sixty-fifth regular meeting of the Section was held at the Cleveland Medical Library, Friday, April 25, 1913, the Chairman, C. C. Stuart, in the chair.

W. C. Tuckerman presented a case of cataract in a girl 17 years of age. There is no history of injury. Three years ago both eyes were said to have been normal in the school inspection examination. The trouble was first noticed three weeks ago. There is now a complete cataract of the left eye; the lens is swollen. The other eye is normal. The patient has had no illness which could have a bearing upon the condition. The urine contains 4 parts per 1000 of albumin.

C. C. Stuart, in discussion, mentioned the case of a boy of 12 years, who, in fencing with another boy, with sticks, was struck in the eye. This happened about one year ago. The immediate reaction disappeared, now the lens is cataractous.

W. E. Bruner had seen several cases of unilateral cataract in young people, with nothing in the history to explain the lesion. Sometimes in such cases one gets a history of antecedent trauma upon later questioning.

J. E. Cogan presented a case of persistent hyaloid artery. The artery was connected at the nerve head and came well forward; an old choroiditis was present.

The regular program was as follows:

1—Report and Presentation of a Case of Optical Iridectomy in Congenital Cataract, by L. K. Baker.

The patient had been presented to the Section two months ago as a case of bilateral congenital cataract. The right eye was needled ten years ago, the operation resulting in a traumatic cataract and extensive leukoma, in place of the original lamellar cataract. The inner border of the lens still contained a small clear area. As a conservative operation iridectomy upon this, the worse of the two eyes, was decided upon and done. Following the operation the vision has increased from 6/200 to 20/200, and the vision for distance is now better in this eye than in the other. In view of this improvement in vision there was raised the question of the advisability of operation upon the congenital cataract of the other eye.

Edward Lauder, in discussion, believed needling of the left eye advisable, since it afforded hope of considerable improvement in vision.

2—Report of Cases of Glaucoma Treated with the LaGrange Operation, by W. E. Bruner.

A report of five LaGrange operations done during the past year. The first case, one of chronic glaucoma, was first seen in 1912. He had been under treatment for two years. The tension was increased in both eyes; eserine decreased the tension for a time, but later it increased again. The left eye, the worse, was subjected to a LaGrange operation in May. In July, the tension of the right eye was 30, that of the left 22.

Case II, glaucoma of the right eye, was first seen in May, 1907. He had been under eserine and enucleation had been advised. Iridectomy was done, with some improvement. Later the patient came in with acute glaucoma and conjunctivitis of the left eye. Under eserine the inflammatory condition cleared up, but the tension remained at 30 and there was some cupping of the nerve. About one month before operation the vision of the left eye showed blurring and the tension was 42. December 11 a LaGrange operation with iridectomy was done. At the end of January the vision of each eye, with correction, was 6/6, the tension of the left eye 15.

Case III was a patient of 71 years, who complained of failing vision and pain in the eyes. There was glaucomatous cupping of both eyes. In October the tension was 38 to 40, and in November 45 to 50. Operation on the left, the poorer eye, was advised and on December 6 a LaGrange operation with iridectomy was done. Sixteen days later the tonometer readings were: right eye, 35 to 40; left eye, 15. A LaGrange operation, the fourth of the series reported, was done on the right eye in January, the tension coming down to within normal.

Case IV was a woman of 46 years, seen one month ago with acute glaucoma of the right eye. The cornea was steamy, the tension 80. March 28, a LaGrange operation with iridectomy was done. There was no reaction. The tension has come down to 22. The fundus is in good condition. Vision is 6/30, with marked concentric contraction of the field.

In all the operations there was noted a slowness in the re-establishment of the anterior chamber. This was probably due to the considerable leakage.

J. E. Cogan, in discussion, said that the results in the last case had been remarkable. The LaGrange operation seems to offer better possibilities than any other.

Edward Lauder asked whether myotics had been tried before operation and whether Doctor Bruner always combined the LaGrange operation with an iridectomy.

W. E. Bruner said that myotics were used in all the cases and all were operated only after they had begun to lose ground under the myotics. In the case of acute glaucoma last reported, there was relief under the myotic until the acute condition was over. He always did iridectomy in the LaGrange operation; this is advised to prevent prolapse.

Edward Lauder said that the results after the LaGrange operation are good. The chief objection to the operation is the mutilation of the eye. The latter is not so marked in the trephining operation. He asked as to the relative values of eserin and pilocarpin in glaucoma.

W. C. Tuckerman did not consider iridectomy essential to the LaGrange operation. Cramps and pain were more apt to occur after eserin than after pilocarpin.

Leo Wolfenstein said that the last case reported by Doctor Bruner had had eserin, but had to discontinue its use because of the discomfort produced. The acute glaucoma developed while the patient was under pilocarpin.

W. E. Bruner, in closing, said there was no doubt but that myotics and surgical treatment each have good results in glaucoma, but the important question is which preserves the vision for the longest period. The patient himself must be considered in determining upon the treatment. In old persons, the vision can probably be preserved well enough with myotics. Trephining and its modifications offer great possibilities in the treatment of glaucoma.

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## CLINICAL AND PATHOLOGICAL SECTION

The ninety-fourth regular meeting of this Section was held at the Cleveland Medical Library, Friday, May 2, 1913, the Secretary, J. D. Osmond, in the chair.

The program was as follows:

1—The Urethroscope: Its Importance in Urethral Pathology, Diagnosis and Treatment, by S. Englander.

The urethroscope, because it permits a view of actual conditions, renders possible the making of an accurate diagnosis of the pathological lesions which may be present in chronic inflammatory conditions in the urethra. No such condition should be subjected to treatment without a previous urethroscopic examination. The diagnosis made by means of the urethroscope, treatment can be undertaken in an intelligent manner and

is easy. No patient who has had a chronic gonorrhoea should be permitted to marry unless the urethroscope shows the urethra to be normal. (To be published in full.)

H. L. Sanford, in discussion, said that one of the important points to bear in mind about endoscopy is that the man using the endoscope must know when to use and when not to use the instrument. It may be used whenever the sound may be safely used, that is, especially in chronic urethral conditions. In chronic spermatorrhea the endoscope is unusually helpful, touching up the verumontanum through the endoscope removes the relaxation of the ducts and overcomes the leakage of semen.

2—The Forcible Correction of Lateral Curvature of the Spine by Abbott's Method, by W. G. Stern.

Up until a short time ago the treatment of scoliosis has been rather hopeless. Mild cases due to faulty position may be improved by exercises. The common method of treating more marked cases has been to suspend the patient by the head and then overcorrect. This, on analysis, proves to be an incorrect method. Lovett was one of the first to suggest extreme flexion in the treatment of scoliosis. It remained for Abbott to develop the idea that correction can be made much more easily after unlocking the spine by making hyperflexion. Most frequently scoliosis is the result of fixation of the spine in the deformed position following posture and muscle weakness. Essentially the Abbott method consists of unlocking the spine by hyperflexion; the curves of the deformity are then untwisted and held in the overcorrected position. It is unfortunate that the impression has gone abroad that Abbott has claimed that scoliosis may be cured in so short a time as six weeks. As a matter of fact, most cases require from six months to a year.

In the Abbott method, the patient is placed in a sagging canvas hammock. By means of windlasses the curvatures of the spine are overcorrected. There are also arrangements for changing the position of the shoulders, pelvis and chest. With the patient in this overcorrected position a plaster cast is applied. Some time later a window is cut into the cast and the overcorrection maintained by inserting felt pads. These latter are changed every week, the cast every six weeks. After the cast is removed a celluloid brace is worn. This ought to be worn for perhaps a year, and after it is left off exercises should be kept up for a further year or two. Relapses have been noted as occurring, perhaps because the celluloid brace was taken off too early and because the exercises were not kept up long enough. The treatment is rather severe, but it is well to remember that it does not interfere with living at home. Other conditions, except those cardiac and pulmonary conditions which would be made worse by pressure, do not interfere with the treatment.

#### COUNCIL MEETING

A regular meeting of the Council was held Wednesday, April 9, 1913, the President, H. L. Sanford, in the chair.

The names of the following applicants for membership were ordered published: For active membership, A. A. Johnson, and O. P. Bigelow. For non-resident membership, J. Francis Rudolph, Berea, Ky.

The list of members suspended for nonpayment of dues was read. The Secretary was directed to ask C. F. Dutton if he would like to be transferred to nonactive membership in the Academy.

The following were chosen as delegates to the Ohio State Medical Association: J. E. Tuckerman, R. K. Updegraff, W. B. Laffer, H. L. Sanford, A. S. Storey. The Secretary was empowered to appoint alternates.

A summary of the data obtained through the inquiry that has been conducted concurring the occurrence of physicians' names in the newspapers was presented. No conclusions could be drawn. The Secretary was instructed to present the matter briefly to the Academy at its next meeting.



The correspondence of Dr. Geo. H. Matson of the State Medical Board was presented to the Council. Senate Bill No. 218 was reconsidered and Senate Bill No. 220 was taken from the table. On motion both bills were endorsed and the Secretary was directed to communicate the action of the Council to Dr. Matson and Senator Friebolin.

Mr. Winter presented to the Council a summary of House Bill No. 587 designed to prevent itinerant vending of drugs and to license vendors of drugs. This bill had received the endorsement of the Northern Ohio Druggists' Association, and he wished it to have endorsement of the Academy. The matter was referred to the Legislative Committee with power to act.

Dr. Dexter requested that, inasmuch as he would be absent from the city during July and August, a Committee be appointed to make arrangements for the annual outing of the Academy. R. K. Updegraff moved that the chair appoint a committee of three. The Chair appointed R. K. Updegraff, S. A. Young, and Willis S. Hobson.

The regular meeting of the Council was held Wednesday, May 14, 1913, the President, H. L. Sanford, in the chair.

The names of the following applicants for active membership were ordered published: Wm. D. Fullerton, M. G. Kochmit, H. Lester Taylor, T. Wingate Todd.

The following were elected to active membership: Aldis A. Johnson, O. P. Bigelow. J. Francis Rudolph, Berea, Ky., was elected to non-resident membership. James Roy Davis, of Willoughby, formerly of Chardon, was reinstated as a non-resident member.

H. H. Powell, J. J. Thomas, S. W. Kelley and H. J. Gerstenberger were reappointed as members of the Milk Commission.

It was ordered that the names of members of the Academy who have not replied to the inquiries sent out concerning the occurrence of physicians' names in the newspapers be published.

A. S. Storey reported on A. P. Hammond's complaint about nurses practicing medicine and surgery in shops, stating that the Cleveland Foundry Company had put on a full time medical man, and that other shops were considering a like move.

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### Book Reviews

**Nervous and Mental Diseases.** For Students and Practitioners. By Charles S. Potts, M.D., Professor of Neurology in the Medico-Chirurgical College of Philadelphia. New (third) edition, enlarged and thoroughly revised. In one 12 mo volume of 610 pages, with 141 engravings and 6 full-page plates. Price, cloth, \$2.75 net. Lee & Febiger, Philadelphia and New York, 1913.

The third edition of this excellent handbook presents several improvements on the previous two editions. The entire subject of neurology and psychiatry is dealt with in a brief but extremely practical manner. The work is easily read, adequately illustrated and full of everyday information which the busy practitioner will appreciate. The author is to be commended for his ability to bring together so much of the practical side of this rather intricate subject, in an up-to-date, concise and easily understood fashion. The reviewer knows of no book which will better serve the purpose for which Pott's, third edition, is intended. H. H. D.

**Flatulence and Shock.** By F. G. Crookshank, M. D., Lond., M. R. C. P. Hon. Physician to the Western General Dispensary, Marylebone, N. W.; Asst. Physician, The Belgrave Hospital for Children. Cloth, demy 8 vo, 47 pages, 2s net. H. K. Lewis, 136 Gower Street, W. C., London, 1912.

This little book contains two very interesting clinical papers on flatulence and shock. The author discusses thoroughly the causes of flatulency and claims that in this condition we may have to deal with a number of causes, such as disintegrating processes due to microbic activity,

gas secretion from the walls of stomach or bowels, and air swallowing or air suction. Some valuable suggestions for treatment are given. Under shock the author presents some interesting facts, particularly its relation to sudden death and medicolegal practice. J. P.

**Electricity in Diseases of the Eye, Ear, Nose and Throat.** By W. Franklin Coleman, M. D.; M. R. C. S. Eng., Ex-President of and Professor of Ophthalmology in The Post-Graduate Medical School of Chicago; Professor of Ophthalmology in the Illinois School of Electro-Therapeutics, Chicago, etc. Cloth, 595 pages, 156 illustrations. The Courier-Herald Press, Chicago, 1912.

Physicians interested in electrical treatment, whether specialists or not, will find in this book a discussion of the application of such treatment to diseases of the eye, ear, nose and throat. The physics, the therapeutic action, exact instruction as to when, how long, and why to use special currents, all are given with clearness and precision. The book is well illustrated and is a valuable addition to the library of any practitioner.

### Acknowledgements

**Epidemic Cerebrospinal Meningitis.** By Abraham Sophian, M. D., formerly with the New York Research Laboratory. Cloth, pp. xv and 272, 23 illustrations, \$3.00. C. V. Mosby Company, St. Louis, 1913.

**Golden Rules of Diagnosis and Treatment of Disease.** Aphorisms, Observations, and Precepts in the Method of Examination and Diagnosis of Disease, with Practical Rules for Proper Medical Procedure. By Henry A. Cables, B. S., M. D., Professor of Medicine and Clinical Medicine at the College of Physicians and Surgeons; Consultant at Jefferson Hospital, St. Louis. 2nd edition, revised and rewritten. Cloth, 318 pages, \$2.25. C. V. Mosby Company, St. Louis, 1913.

**Manual of Medicine for Nurses.** By George H. Hoxie, M. D., Physician to the German Hospital, Kansas City, Mo.; and Pearl L. Laptad, formerly Principal of the Training School for Nurses of the University of Kansas. Second edition, rewritten and enlarged. Cloth, 12mo of 351 pages, 32 illustrations, \$1.50 net. W. B. Saunders Company, Philadelphia and London, 1913.

**Surgery of the Eye.** A Hand-book for Students and Practitioners. By Ervin Török, M. D., Surgeon to the New York Ophthalmic and Aural Institute; Ophthalmic Surgeon to Beth Israel Hospital, etc.; and Gerald H. Grout, M. D., Assistant Surgeon to the New York Ophthalmic and Aural Institute; Instructor in the Eye Department, Vanderbilt Clinic; etc. Cloth, 8vo of 507 pages, with 509 original illustrations, 101 in colors, and 2 colored plates, \$4.50 net. Lea & Febiger, Philadelphia and New York, 1913.

**A Manual of Surgical Treatment.** By Sir W. Watson Cheyne, Bart., C. B., D. Sc., Senior Surgeon to King's College Hospital and F. F. Burgard, M. S., F. R. C. S., Surgeon to King's College Hospital. Second Edition. In 5 Volumes. Volume IV. Cloth, 622 pages, 208 illustrations. \$6.00 net. Lea & Febiger, Philadelphia and New York, 1913.

**The Operating-Room and the Patient.** A Manual of Preoperative and Postoperative Treatment. By Russell S. Fowler, M. D., Chief Surgeon, First Division, German Hospital. Third Edition. Cloth, 611 pages, 212 illustrations, \$3.50 net. W. B. Saunders Company, Philadelphia and London, 1913.

**The Modern Hospital.** Its Inspiration: Its Architecture: Its Equipment: Its Operation. By John Allan Hornsby, M. D., Secretary Hospital Section, American Medical Association, and Richard E. Schmidt, Architect. Cloth, 644 pages, 207 illustrations, \$7.00 net. W. B. Saunders Company, Philadelphia and London, 1913.

**Private Duty Nursing.** By Katherine DeWitt, R. N., Assistant Editor of the American Journal of Nursing. Cloth, 244 pages, \$1.50 net. Pp. 244. J. B. Lippincott Company, Philadelphia, 1913.

Insurance Medicine. Being Suggestions to Medical Examiners. By Henry H. Schroeder, M.D., Medical Director, Mutual Life Insurance Company of New York. Cloth, 150 pages, \$2.00 net. William Wood and Company, New York, 1913.

The Narcotic Drug Diseases and Allied Ailments. Pathology, Pathogenesis and Treatment. By George E. Pettey, M. D. Cloth, 516 pages, illustrated, \$5.00 net. F. A. Davis Company, Philadelphia, 1913.

Proceedings of the Canal Zone Medical Association, Isthmian Canal Commission, for the Half-Year, October, 1911, to March, 1912. Vol. IV, Part II. I. C. C. Press, Quartermaster's Department, Mount Hope, Canal Zone.

The University of Toronto Medical Bulletin. Vol. I, No. 3, April, 1913. University Press, Toronto.

Fulguration and Thermoradiotherapy. By William Seaman Bainbridge, M.D. Diathermy (Nagelschmidt) and Electrocoagulation (Doyen). By Worthington Seaton Russell, M.D. Reprinted from the Journal of Advanced Therapeutics for January, 1913.

Mosquito Catching in Dwellings in the Prophylaxis of Malaria. By A. J. Orenstein, M.D. Reprinted from the American Journal of Public Health, Vol. III, No. 2.

The Desiccation Process of Tissue Destruction as Applied to Certain Pathological Conditions. By William L. Clark, M. D., Chief of the Department of Electrotherapeutic Research, St. Agnes Hospital, Philadelphia. Reprinted from the Pennsylvania Medical Journal, February, 1913.

Country Schools and Rural Sanitation. By Ch. Wardell Stiles, Professor of Zoology, Hygienic Laboratory, U. S. P. H. Service. Reprint No. 116 from Public Health Reports, February 7, 1913. Government Printing Office, Washington.

Contagious Diseases: Their Prevention and Control in Children's Institutions. By James P. Leake. Assistant Surgeon, U. S. P. H. Service. Supplement No. 6 to Public Health Reports, April 11, 1913. Government Printing Office, Washington.

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### American College of Surgeons

An American College of Surgeons was organized at a meeting in Washington on Monday evening, May 5, 1913. Four hundred and fifty prominent surgeons of the continent of North America came together at the invitation of an Organization Committee which was appointed by the Clinical Congress of Surgeons of North America at its meeting in November, 1912. This committee consisted of Edward Martin of Philadelphia, Emmet Rixford of San Francisco, John B. Murphy of Chicago, Rudolph Matas of New Orleans, Albert J. Ochsner of Chicago, Charles H. Mayo of Rochester, Minn., Frederic J. Cotton of Boston, George Emerson Brewer of New York City, J. M. T. Finney of Baltimore, W. W. Chipman of Montreal, George W. Crile of Cleveland and Franklin H. Martin of Chicago.

The invitations, which resulted in this large gathering of surgeons in Washington, were extended by the Organization Committee after a carefully prepared campaign in which each large university city on the continent was visited by a member of the committee who met, in person, a group of selected men brought together by a committee of three in each locality, which committee had been authorized by the Organization Committee to extend an invitation to the surgeons in their locality to meet the representative of the Organization Committee. These five hundred men who were invited to the meeting in Washington, four hundred and fifty of whom responded, represented all branches of surgery and surgical specialties. The surgeons responding to the invitation were designated the Founders of the College.

#### Founders Meeting

At this meeting in Washington, called for the purpose of effecting an organization, the Committee on Organization presented a definite, tenta-

tive plan which plan included a call of the meeting, the presentation of by-laws, the presentation of resolutions, a plan for the completion of the organization by the election of governing bodies and executive officers.

### Call of the Meeting

The men were called together by Edward Martin, Chairman of the Organization Committee, who called for the reading of the Call of the Meeting.

The Call of the Meeting was read by Franklin H. Martin, Secretary of the Committee. This call, which is herein quoted in part, summarizes the work for which the Committee was authorized:

"First, It should formulate a minimum standard of requirements which should be possessed by any authorized graduate in medicine, who is allowed to perform independently surgical operations in general surgery or any of its specialties.

"Second, It should consider the desirability of listing the names of those men who desire to practice surgery and who come under the authorized requirements.

"Third, It should seek the means of legalizing under national, colonial, state or provincial laws, a distinct degree supplementing the medical degree, which shall be conferred upon physicians possessing the requirements recognized by this law as necessary to be possessed by operating surgeons.

"Fourth, It should seek cooperation with the medical schools of the continent which have the right to confer the degree of M. D., under the present recognized standards, and urge these colleges to confer a supplementary degree on each of its graduates who have, in addition to their medical course, fulfilled the necessary apprenticeship in surgical hospitals, operative laboratories and actual operative surgery.

"Fifth, It should authorize and popularize the use of this title by men upon whom it is conferred, and its use should especially be urged in all directories of physicians in order that the laity as well as medical men can distinguish between the men who have been authorized to practice surgery, and those who have not."

"The net result of the Committee's efforts is that five hundred surgeons of all specialties, representing every large center of population, every important university city with a teaching faculty of medicine, every special and general society representing a specialty of surgery, all the important surgical clinics and hospitals, besides many independent surgeons from all portions of the North American continent have consented to become founders of the organization under contemplation, and of this five hundred fully four hundred and fifty are here at this hour ready to fulfill their obligation."

The Founders Organization was then completed by the election of Edward Martin as Chairman and Franklin H. Martin as Secretary and the authorization of an order of business.

### By-Laws

The interest in the By-laws centered in: 1, The name. 2, The object. 3, The forming of the organization. 4, Its administrative plans. 5, The meaning of the fellowship. 6, Fees. 7, Directory. 8, Expulsion. 9, Standing committees.

I. NAME. The name of the corporation is the College of Surgeons.

II. OBJECT. The object of the College shall be to elevate the standard of surgery, to provide a method of granting fellowships in the organization and to formulate a plan which will indicate to the public and the profession that the surgeon possessing such a fellowship is especially qualified to practice surgery as a specialty.

III. ORGANIZATION. The corporation is to be known as the College. The College shall consist of all members of the corporation, to be known as Fellows, and shall vest the general management of the

corporation in a Board of Governors, and the Board of Governors shall in turn vest the details of the management in a board of trustees, to be known as the Board of Regents.

IV. ADMINISTRATIVE PLANS. 1. The Board of Governors shall consist of the five hundred surgeons invited by the Organization Committee to serve as founders of the College and who have signified their willingness to act in that capacity. The individuals of the first Board of Governors shall also be known as the founders of the College of Surgeons.

This original Board of Governors shall be divided into three classes to serve one, two and three years. At the annual meeting in 1914 and at each succeeding annual meeting, the Fellows of the College shall elect fifty surgeons to membership in the Board of Governors, each for a term of three years. Thirty of these are to be elected from a list of nominations consisting of two members each nominated by the following surgical societies and associations of North America :

American Surgical Association. Section on Surgery of the American Medical Association. Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association. General Surgical Division of the Clinical Congress of Surgeons of North America. Division of Surgical Specialties of the Clinical Congress of Surgeons of North America. American Gynecological Society. Southern Surgical and Gynecological Association. Western Surgical Association. Section on Surgery of the Canadian Medical Association. American Association of Obstetricians and Gynecologists. American Orthopedic Association. American Association of Genito-Urinary Surgeons. American Laryngological Society. American Ophthalmological Society. American Otological Society.

Twenty members shall be elected at large to represent surgeons of North America not affiliated with the above societies or associations.

The Board of Regents shall consist of twelve surgeons, members of the Board of Governors, elected by the Governors, these to be divided into three classes whose terms of service shall expire in one, two and three years. Their successors shall be elected each for a term of three years. Not more than three of each class of four shall be elected from one country. The Board of Regents is increased to fifteen in number by three officers of the Corporation, the President, Treasurer and General Secretary. The two Vice-Presidents are ex-officio members of the Board. The Board of Regents is the administrative body of the corporation, corresponding to a board of trustees in other corporations.

V. FELLOWSHIPS. The Fellows of the College shall be graduates in medicine, who are legalized to practice medicine in their states and provinces, who have made an application for fellowship, such application to be endorsed by three Fellows of the College, one of whom shall be a member of the Board of Governors, and who meets the qualification requirements that shall, from time to time, be established by the Board of Regents, and who shall be elected to fellowship by the Board of Regents on recommendation of the Committee on Credentials.

All Fellows of the College shall be designated a Fellow of the College of Surgeons and shall be authorized and encouraged to use the letters F. C. S. after his name on professional cards, in professional directories and in scientific articles published in surgical literature.

VI. FEES. An initial fee of Twenty-five Dollars shall be required of each member of the College on his election to fellowship by the Board of Regents. The annual dues will be Five Dollars.

VII. DIRECTORY. The Board of Regents shall issue each year a directory containing the names and addresses of the Fellows of the College of Surgeons, arranged by states, provinces and colonies.

VIII. EXPULSION. Any member of the College may be expelled for unprofessional or other conduct inconsistent with the rules and regulations of this Corporation by a majority vote of the Board of Regents.

IX. STANDING COMMITTEES. The Board of Regents shall elect the following standing committees: 1, Credentials. 2, Legislation. 3, Graduate Schools and Hospitals.

These by-laws were unanimously adopted with the provision that the Board of Regents should make any minor corrections deemed desirable and present such corrections for adoption at the next meeting of the Board of Governors.

#### Officers Elected

President, J. M. T. Finney, Maryland; First Vice-President, W. W. Chipman, Quebec; Second Vice-President, Rudolph Matas, Louisiana; Treasurer, A. J. Ochsner, Illinois; General Secretary, Franklin H. Martin, Illinois.

#### Board of Regents

J. M. T. Finney, Maryland; A. J. Ochsner, Illinois; Franklin H. Martin, Illinois; George E. Brewer, New York; George E. Armstrong, Quebec; John B. Murphy, Illinois; Edward Martin, Pennsylvania; F. J. Cotton, Massachusetts; Herbert A. Bruce, Ontario; C. F. Stokes, Washington, D. C.; William D. Haggard, Tennessee; George W. Crile, Ohio; Robert E. McKechnie, British Columbia; Charles H. Mayo, Minnesota; Harry M. Sherman, California.

#### Selection of Fellows

Much interest was manifested in the method to be pursued in the selection of the members of the Corporation and in the method of conferring fellowships. A series of resolutions covering this subject were offered by the Secretary and adopted.

The prospective Fellows are to be divided into four classes, A, B, C, and D. Classes A, B, and C are by resolution to be admitted without the formality of submitting to an examination under the following resolution:

"RESOLVED, That the A class shall consist of founders of the College.

"The B class shall consist of the members of the special surgical societies constituting the Congress of American Physicians and Surgeons and one hundred each, nominated by accredited committees, from the Surgical Section of the American Medical Association, from the section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, from the General Surgical Section of the Clinical Congress of Surgeons of North America, from the Division of Surgical Specialties of the Clinical Congress of Surgeons of North America, from the American Association of Obstetricians and Gynecologists, from the Surgical Section of the Canadian Medical Association, from the Southern Surgical and Gynecological Association and from the Western Surgical Association.

"The C class shall consist of surgeons of prominence of five years in the practice of surgery or a surgical specialty and who, in the opinion of the Committee on Credentials, are eligible for fellowship in the College without formal examination."

For all others, coming under Class D, the following resolutions was passed:

"BE IT FURTHER RESOLVED, That the Board of Regents, through the Committee on Credentials, limit the admission of the Fellows to classes A, B, and C until the Board of Regents formulates a standard of requirements for class D and reports the recommendations back to the Board of Governors for approval at the meeting to be called by the Board of Regents in Chicago, November, 1913."

#### Applications for Fellowships

It will be the spirit of this Association to open the fellowship to all competitors in surgery without favor. Scientific attainments, surgical abil-

ity, unquestioned moral character, measured by the College's standards, shall constitute the measure for fellowship.

There are many hundreds of surgeons on the continent, who are not included in classes A and B, who fall into the C class. Applications from these men will be welcome and their names will have the most careful consideration by the Committee on Credentials.

All applications for membership should be forwarded to the Secretary of the corporation. It would add to the ease of the work of the Committee on Credentials if references in the way of vouchers or recommendations from one or more well known surgeons accompany each application for fellowship.

#### Formal Conferring of Fellowships

The first convocation for the formal conferring of fellowships will occur in November, 1913, at a time and place that will be designated later. The first directory of Fellows will be distributed at that meeting. For that reason the applications for fellowship on the part of A, B, and C classes should be filed as promptly as possible in order to facilitate the correcting of lists for publication.

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### Medical News

**Army Medical Corps Examinations.**—The Surgeon General of the Army announces that preliminary examinations for appointment of First Lieutenants in the Army Medical Corps will be held on July 14, 1913, at points to be hereafter designated. Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the travelling expenses of applicants as much as possible. In order to perfect all necessary arrangements for the examination, applications must be completed and in possession of The Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present forty vacancies in the Medical Corps of the Army.

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**The American Proctologic Society** will hold its fifteenth annual meeting in Minneapolis, June 16 and 17.

**The Alienists and Neurologists of the United States** will hold a meeting in Chicago, June 24-27, during the week following the meeting of the American Medical Association in Minneapolis.

**Milwaukee Milk Ordinance Upheld.**—The United States Supreme Court has declared valid the Milwaukee ordinance which gives to the city the power to exclude milk from dairies whose cows are not subjected to an annual tuberculin test and examination by a veterinarian. The decision is of the utmost importance, since it upholds the right of municipalities to control their milk supplies by excluding such milk as does not conform to the standards of the municipality.

**Reorganization of the New York State Department of Health.**—The Seeley bill, embodying the recommendations of the advisory commission appointed by Governor Sulzer, has been passed by both houses of the legislature and has been signed by the governor. The state health

commissioner is to receive \$8,000 per year, and his deputy \$5,000. The public health council of the state will consist of the commissioner and six other members appointed by the governor, of whom at least three must be physicians, and of these one must have had training in sanitary science. The members of the council will receive \$1,000 per year and their expenses. The council is required to meet at least once a month. It has the power to establish a sanitary code, which shall have the power of law; violations are classed as misdemeanors. The department is to be divided into the following nine divisions, each under the management of a director appointed by the commissioner: Administration, sanitary engineering, laboratories and research, communicable diseases, vital statistics, publicity and education, child hygiene, public health nursing, and tuberculosis. The state is to be divided into a number of sanitary districts not to exceed twenty, excluding cities of the first class. A sanitary supervisor, who shall be a physician, is to be appointed for each district by the commissioner. The measure is the most enlightened public health legislation enacted in this country.

**Urological Ward at the Johns Hopkins Hospital.**—Plans have been prepared for the James Buchanan Brady urological clinic and ward at the Johns Hopkins Hospital. It is to have accommodations for sixty patients and is to contain laboratories for experimental and research work.

**Endowment for the University of Cincinnati.**—Mrs. Mary Emery has given to the pathological department of the University of Cincinnati an endowment fund of \$125,000. The endowment fund of the medical department has now reached a total of three-quarters of a million dollars, and it is proposed to rebuild the medical school on ground next to the new city hospital as soon as the fund reaches \$1,000,000.

**County Society Meetings.**—Belmont county, at Bellaire, April 3. P. L. Ring, of Shadyside, spoke of "Newer Things in Practice," and C. B. Messerly, of Martins Ferry, of "Puerperal Eclampsia."—Portage county, at Ravenna, April 10. G. M. Logan discussed the value of radiography in the diagnosis and treatment of injuries to bones.—Richland county, at Mansfield, April 16. A symposium on physiology was held, J. C. Stevens discussing the brain, W. E. Loughridge the blood, and G. W. Baughman the liver.—Clark county, at Springfield, April 21. Papers were read by H. E. Heistand and J. E. Studebaker.—Coshocton county, at Coshocton, April 24. The following papers were presented: "Pneumonia," by J. W. Dillon, of New Castle; "Blood Count: Its Importance in Diagnosis," by J. D. Lower, of Coshocton.—The Auglaize County Medical Society held a public meeting at St. Marys, April 24. A. S. Rudy, of Lima, gave an address on "The Friedmann Cure for Tuberculosis," and Miles F. Porter, of Ft. Wayne, Ind., one on "The Conservation of Human Life and Health." The following officers were elected: President, C. L. Dine, of Minster; Vice-President, G. A. Haveman, of New Bremen; Secretary-Treasurer, M. J. Longworth, of St. Marys.—Logan county, at Bellefontaine, May 1. R. H. Butler presented a paper on "Diseases of the Lachrymal Passages."—Summit county, at Akron, May 6. The program was as follows: "Pathology and Treatment of Eclampsia," by R. S. Friedly; "Use and Abuse of Antiseptics," by W. A. Parks; "Diagnosis and Treatment of Syphilis," by S. J. Metzger.—Allen county, at Lima, May 6. The following papers were presented: "Scarlet Fever," by W. C. Yingling, of Beaverdam; "Preparation of the Physician for Military Training," by Chas. Bamble, of Spencerville.—Tuscarawas county, at Uhrichsville, May 6. Papers were presented by E. A. McCollam and P. H. Segrist.—Ashtabula county, at Ashtabula, May 6. A. L. Pomeroy, the oldest practicing physician in Ashtabula county, was the guest of honor at the banquet. W. S. King, state representative from Ashtabula county, spoke on "Medical Legislation."—Morrow county, at Mt. Gilead, May 7. The following officers were elected: President, W. L. Case; Vice-President, G. H. Pugh; Secretary, T. P. Johnstone; Treasurer, W. C. Bennett.—Portage



county, at Ravenna, May 8. The program consisted of a symposium on cystitis by E. J. Widdecombe, G. J. Waggoner, E. B. Dyson, and W. B. Andrews.—Crawford county, at Bucyrus, May 8. Papers were read by W. D. Hamilton, of Columbus, and A. A. Starner, of Galion.—Wyandot county, at Upper Sandusky, May 8. The program was as follows: "The Accessory Sinuses," by A. M. Haner, of Columbus; "Retroversion," by Fred Fletcher, of Columbus; "Medical Ethics," by E. S. Jones, of Marseilles; "Iritis," by W. C. Davis, of Columbus.—Hancock county, at Findlay, May 14. Papers were read by E. G. Burton, of Findlay; D. C. Weeks, of Marion; and S. D. Foster and C. N. Smith, of Toledo.

**S. B. Marvin**, a physician and druggist of Cincinnati, has been found guilty of selling opium.

**Personal.**—E. R. Hayhurst, of Chicago, has been made director of the new bureau of occupational diseases of the Ohio State Board of Health at a salary of \$3,000.—C. A. Ulmer, of Bucyrus, has been made medical examiner of Crawford county under the state liability law.—J. R. Johnson, of Lima, has been made director of the district tuberculosis hospital at Lima.—D. S. Hartinger, of Pomeroy, will spend the summer in Europe.—T. R. Laughbaum has located at Crestline.—A. F. McQueen has opened an office at Amherst.

**The Lakeside Hospital Medical Society.**—The sixty-seventh meeting was held April 30. The program was as follows: Presentation of a Case of Colon Bacillus Septicemia, by D. B. Lowe; Presentation of a Case of Multiple Tumors, by E. R. Garrett; Demonstration of Gynecological Specimens, by W. D. Fullerton; Demonstration of Tumors of the Carotid Gland, by Allen Graham.

**The Lakeside Hospital Training School for Nurses.**—At the annual commencement held May 16, twenty-six nurses were graduated.

**The City Hospital Training School for Nurses**, at its commencement held May 20, graduated twenty-four nurses.

**Medical Library Association Taxed.**—Probate Judge Hadden has ruled that the Marcus Rosenwasser fund of \$10,000 of the Cleveland Medical Library Association is subject to an inheritance tax of 5 per cent.

**J. J. Thomas**, 1110 Euclid Avenue, will spend the summer in Europe.

**Frank Oakley**, 216 Lennox Building, has returned from Oberlin, where he took a special course in cystoscopy.

**H. H. Davis**, 1730 W. 25th St., has resigned as district physician.

**A. C. McGannon**, 6603 Lorain Avenue, was burned about the hands while cranking an automobile.

**Walter G. Stern**, 821 Schofield Building, has been elected an honorary member of the Erie (Pa.) County Medical Society.

**R. H. Bishop, Jr.**, secretary of the Anti-Tuberculosis League of Cleveland and chief of the bureau of tuberculosis of the health department, has been made director of the tuberculosis sanatorium at Warrensville.

**N. W. Ingalls**, assistant professor of anatomy in Western Reserve University, has been appointed research fellow in anatomy in the Victoria University of Manchester.

**Oscar T. Schultz**, assistant professor of pathology in Western Reserve University, has been made professor of pathology and bacteriology in the University of Nebraska.

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**What Information Does the Tuberculin Test Furnish?**—By the results of postmortems we were convinced several years ago that tuberculosis is a widespread infection, but we had been wont to interpret the tuberculin test as a positive proof that active tuberculosis was present.

We knew very little of the latent aspect of tuberculosis at that time. Little did we realize that infection occurred in childhood to so great an extent as we now know. When the newer methods of applying the test had been made known, however, and when they had been widely employed, it was found that a tuberculin reaction in itself only indicates that tuberculosis antibodies are present. They may be due to an active, a quiescent, and for a certain time after has healing occurred, to a healed lesion. When its results were compared with postmortem evidence, it became apparent that the test produced a reaction in many individuals who had shown no evidence of suffering from active tuberculosis. This fact has caused a great deal of confusion and disappointment in the minds of those who previously were wont to place reliance in its diagnostic worth. This confusion has spurred investigators to renewed efforts to learn how to interpret properly the test to see if it cannot still be preserved as a method of great diagnostic worth.

Coincident with increased diagnostic ability, the importance of the various aspects of the disease which had previously been unrecognized has increased, until at the present time our conception of tuberculosis as a disease is so different from what it once was that it calls for an entirely new consideration.

We are now attempting, with a fair degree of success, to recognize this disease in its incipiency, a condition which was not recognized previous to the tuberculin era. It seems probable that the confusion which exists at the present time regarding the reliability of the tuberculin test will call for a closer study of it, and result in a better understanding of it and its true worth. I am convinced that much valuable information can be derived from a more accurate study and a more careful interpretation of the reactions which occur. It is quite probable that points of distinctly differential diagnostic importance between active, latent, and healed lesions may be obtained by such a study.

Some observers go so far as to discredit all forms of the tuberculin test when applied to adults; others confine their lack of confidence to certain forms of the test; while still others maintain that careful interpretation of any one of the cutaneous, subcutaneous, or conjunctival will give data upon which a fairly accurate diagnosis may be based in adults as well as children.

A very confusing observation is that a patient may react to one test and not to another given at the same time. This observation perplexes even the most ardent advocates of the test, and so far remains without a wholly satisfactory explanation. Fortunately, it occurs comparatively infrequently and affects the percentage results very little. This difference in result may be in part due to technic, or it may be due to differences inherent in the various tests themselves; or it may be an individual matter, wholly dependent upon the patient. We do not know. But no matter how many of the tests are administered, if the patient reacts to any one of them it shows the presence of tuberculosis antibodies and should be taken as proof of the fact that he has been infected by tubercle bacilli at some previous time.

In order to appreciate the meaning of early diagnosis and the full value of tuberculin as a diagnostic agent, it is necessary to keep constantly before us the fact that nearly all people are infected with tuberculosis, and that a very large proportion of them suffer from active, though probably unrecognized, symptoms some time during their lives. It must be remembered that the one-ninth or one-seventh of the human race that die of tuberculosis is only part of the entire number who show symptoms. A much larger proportion suffer from what is recognized as clinical tuberculosis, and a still much larger proportion suffers now and then from symptoms which, though rarely recognized, are, nevertheless, due to activity in partially quiescent foci. It is probable that our diagnostic efforts in the future will trend toward recognizing these

quiescent cases and putting them on the right way to complete healing. In this the tuberculin test will be a great factor.—Pottenger: *Tuberculin in Diagnosis and Treatment* (C. V. Mosby Company, St. Louis, 1913).

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International Medical Monographs. Diabetes: Its Pathological Physiology. By John J. R. Macleod, M. B., Ch. B., D. P. H., Professor of Physiology, Western Reserve University, Cleveland. Cloth, 224 pages, \$3.00 net. London: Edward Arnold. New York: Longmans, Green & Company, 1913.

Thirty-second Annual Report of the State Department of Health of New York. For the year ending December 31, 1911.

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**Bacterial Capsule Stain**—1, Make films as thin as possible. 2, Flood the film with glacial acetic acid for a few seconds and drain. 3, Neutralize the acid by washing the film with a 1 per cent solution of sodium carbonate. 4, Stain with a diluted solution of gentian violet. 5, Wash off the gentian violet with an aqueous solution of eosin. 6, Wash off the eosin with Fehling's cupric sulphate solution and examine in this fluid. The capsule stains a purplish-pink—S. T. Darling in *Proceedings of the Canal Zone Medical Association, Vol. IV, Part II, p. 15.*

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**Time to Stop a Dangerous Procedure.**—Joseph J. O'Connell, health officer of the port of New York, has made the following report to the health commissioner of New York City, with the request that the department of health prohibit the use of the Friedmann vaccine "until such time as those interested in its administration shall satisfy the health department of its innocuous character":

"The reports of the investigator of our department whose peculiar experience with tuberculosis gives his reports a compelling force, are all to the effect that the dangers which might be apprehended in such a form of treatment are actually present therein. He finds that the patients subjected to this treatment have not improved, but have lost ground to an extent greater than might be expected from the natural ravages of the disease.

"He finds that where the tuberculous condition has affected one side prior to inoculation with the serum, there was, after such inoculation, an unnaturally rapid development of the tubercular process on the hitherto healthy side, which indicates that the operation of the alleged cure had a tendency to accelerate rather than retard the progress of the disease.

"It seems to me that it would be culpable for us longer to hesitate, and that our duty is to insist upon such a regulation and supervision of this enterprise as shall prevent the perpetration upon the public of a dangerous and cruel fraud. We can not overlook the fact that this treatment has been exploited much after the manner of the exploitation of certain so-called mining securities and other financial schemes from which the credulous public has suffered.

"The wide advertisement of the serum has had an effect of awakening a final and pitiful hope in the breasts of the desperately ill, which shrewd and conscienceless men might turn into an immense financial profit.

"There has been time and opportunity in plentiful measure extended to Dr. Friedmann and those who propose similar remedies for tuberculosis to demonstrate the therapeutic value of their treatments, but there has been no such demonstration of value. On the other hand, we have before us reports of the gravest character."

## DEATHS

**Octavius B. Schmall**, Medical College of Indiana, Indianapolis, 1882; of Cincinnati; died in the Longview Hospital in that city, March 3, aged 59.

**Christopher M. Monroe**, Cincinnati College of Medicine and Surgery, 1880; a practitioner in Canton during the past twenty years; a veteran of the Civil War; died suddenly April 17, from heart disease, aged 68.

**Winfield Scott Sayler**, Medical College of Ohio, Cincinnati, 1880; of Gratis; died April 20, of surgical shock following amputation of the leg for septicemia due to an injury of the foot, aged 59.

**George W. Haile**, Medical College of Ohio, Cincinnati, 1866; died at the Good Samaritan Hospital Annex, Cincinnati, April 23, from double pneumonia, complicating diabetes of long standing, aged 67.

**Samuel M. Richardson** (license, Ohio, 1896), a veteran of the Civil War and for more than half a century a resident of New Matamoras; died April 21, from senile debility, aged 85.

**James Fisher Whittaker**, Starling Medical College, Columbus, 1879; for thirty-three years a practitioner of Bloomingdale; died April 30, from pneumonia, aged 72.

**William Luther Shollenbarger**, Medical College of Ohio, Cincinnati, 1899; of Winton Place, Cincinnati; died at the Bethesda Hospital, Cincinnati, May 5, aged 39.

**Wm. F. Carson**, Eclectic Medical College, Cincinnati; 1883; of Alliance; died at the Lakeside Hospital, Cleveland, May 8, following a gallbladder operation, aged 57.

**Benjamin Franklin Brown**, Ohio Medical University, Columbus, 1896; died suddenly at his home in Shawnee, May 13, from heart disease, aged 45.

**Samuel Ross McCready**, Western Reserve University, Cleveland, 1888; of Leetonia; health officer of Columbiana County and city physician of Leetonia; aged 57; while driving his automobile in Leetonia, May 14, was caught by a rope which was stretched across the street and thrown from his machine, breaking his neck.

**Charles Frederick Wocher**, Medical College of Ohio, Cincinnati, 1891; a well known physician and druggist of Cincinnati; died at his home, May 15, from pneumonia, aged 56.

**B. Frank Barnes**, Cleveland College of Physicians and Surgeons, 1895; of Newark; died May 28 at the Lakeside Hospital, Cleveland, following a gallbladder operation, aged 48.

# The Cleveland Medical Journal

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VOL. XII

JUNE

NO. 6

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## The Status of Roentgenology in the Diagnosis of Pulmonary Tuberculosis

By GEO. F. THOMAS, M.D., Cleveland

The importance of an accurate diagnosis at the earliest possible moment in every case whose clinical history warrants a suspicion of tuberculosis, makes it imperative that every resource of modern medical science be utilized, if necessary, to obtain it. There should be no excuse for incomplete examinations. In the effort to be of greater service in this field, there has been a constant endeavor on the part of the roentgenologists to secure more complete and more accurate information from their examinations. As a result, a competent X-ray investigation is a very valuable aid in the diagnosis of incipient tuberculosis, and makes possible a positive diagnosis in many cases where the physical examination is inconclusive or absolutely negative.

The possibilities of this method can be appreciated when we consider first that normal lung is practically transparent to the X-ray, because it is composed almost entirely of air cells, and second that almost every pathological process is accompanied by an increase in density due to the filling up or obliteration of these air cells. Consequently the contrast in shadow produced by even a slight infiltration can be readily demonstrated on a properly made radiograph.

Even in the early days of roentgenology, it was possible by means of the flouroscope to obtain more accurately than by other methods, such information as the size, shape and position of the heart, the degree of expansion and the densities of various parts of the lungs, the limitation of diaphragmatic move-

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*Presented, with demonstration of stereoscopic radiographs, before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, Friday, April 4, 1913.*

ment, the presence of pleural adhesions or exudates, all of which helped in the diagnosis, and especially in the confirmation or elimination of opinions based on the physical examination. This applied especially to those cases where the clinical history, the physical examination and the laboratory findings were not quite sufficient to make a positive diagnosis, and the X-ray examination helped, not so much to reveal the nature of the disease, as to outline its extent.

The development of radiography marked another advance. When it became possible to make rapid exposures, the improvement in contrast and detail obtained rendered more complete and accurate interpretations possible. Most of our prominent clinicians became very enthusiastic over this method. But a plain radiograph did not give perspective. It was a flat composite of superimposed shadows, and it was difficult and often impossible to separate them and obtain a mental picture of the different layers of tissue that produced them.

To overcome this difficulty, stereoscopic radiography has been developed. In this method two radiographs are made at slightly different angles to correspond with the different lines of vision of the right and left eyes, thus producing a right eye image and a left eye image. It is necessary that both of these radiographs be made in the few seconds of an easily sustained inspiration. When these two plates are viewed simultaneously by the right and left eyes respectively, the two separate flat radiographic views fuse together into a single image which stands out in true perspective, resembling a glass model of the chest into which one can look and see the depth and structure of the original tissues. The amount of information to be obtained from a careful examination of this stereoscopic image is a revelation to those unfamiliar with this method. To one accustomed to it, the slightest pathological changes stand out wonderfully distinct. In this method we have the most accurate means yet devised to detect incipient lesions, the fullness and accuracy of the interpretation depending on the experience and skill of the examiner. Its period of greatest usefulness is at that time when the pathological changes are very slight and the physical signs are not conclusive; at a time so early that we have only the clinical history to arouse our suspicions of tuberculous involvement. At this time any method or combination of methods that makes it possible to confirm or eliminate a diagnosis of tuberculosis is of the

greatest importance, and I believe that by a combination of a thorough physical examination and a thorough X-ray examination, it is possible to make a positive diagnosis in practically every incipient case.

A careful consideration of the Roentgen method as compared with the older method of inspection, palpation, percussion and auscultation, leads to the conclusion that the general statement cannot be made that one is more necessary than the other, but on the contrary does demonstrate that neither is complete without the other. Each method is capable of confirming, disproving and adding to the information obtained by the other. The X-ray will show up the presence of deep seated lesions that cannot be revealed by physical examination. It will give a better conception of the extent of those that can be demonstrated physically. On the other hand, auscultation will give information that cannot always be deduced accurately from radiographs concerning the activity of the lesions. From considerable experience in this field, I have learned to be conservative in the interpretation of shadows that do not present typical characteristics, and to depend somewhat on the physical findings to determine the degree of their activity.

The pathological changes that occur after infection of the lungs with the tubercle bacillus vary according to the mode of infection, and the amount of reaction of the invaded tissues. The radiographic findings will vary accordingly and are of great service in the classification of cases.

The earlier processes of acute tuberculosis consist in a filling up of the air cells with exudate, the formation of tubercles with surrounding zones of infiltration, the injection of the lymphatics, and enlargement of the lymphatic glands along the bronchi and the root of the lungs. In the stereoradiographic image, the changes in the air cells are visible at a very early stage, because of the marked contrast in the density of exudate as compared with the lack of density of air. The appearance has been compared very aptly to that of little buds forming along the smaller branchings of the bronchial tree. The shadows of these smaller divisions and likewise the larger trunks are accentuated by the peribronchial infiltration and the lymphatic involvement. In the hilus shadow, the enlarged glands stand out prominently, completing the typical picture of a localized tuberculous infection of the lungs.

The various other pathological conditions, such as consolidation, cavitation, pleural effusion, and pneumothorax, are readily demonstrated in the stereoradiograph.

Fibrosis of the lung produces an appearance upon the radiograph, characterized by marked densities and contrasts, distortion of the diaphragm and displacement of the heart due to the contraction of the pleural adhesions, and the compensatory emphysema of the sounder lung.

In practically every radiograph of the chest, whether there are active lesions or not, there are evidences, at the hilus of the lung, of old infections, such as calcified tubercles, and calcified bronchial glands. Occasionally, one sees a calcified tubercle with a surrounding zone of infiltration, or possibly a couple of such concentric zones, each with a different degree of density. In these cases, a careful investigation of the previous history may show that these zones correspond to periods of ill health, with a temporary lighting up of the old process.

In acute cases, the tubercle shadows are soft and present indistinct outlines and the lung in the involved area is hazy, whereas in healed lesions in patients having a history of a good recovery, the tubercles are distinct, sharply outlined, and calcified, the lung parenchyma clear, and the branchings of the hilus shadow well defined. In consideration of these facts, it seems possible in the majority of cases to differentiate between active and healed foci, and to a certain extent to estimate the degree of activity. Certainly it is reasonable to conclude, in cases where there is an excessive amount of calcareous deposit, that the prognosis is relatively more favorable than in those in which there is but slight evidence of reaction.

In conclusion, the following facts seem worthy of repetition. A thorough X-ray examination is of value in cases of tuberculosis even when the other findings are positive, because it will give more accurate knowledge of the extent of the involvement; it will aid in forming a more accurate prognosis; and it will help in the choice of the proper treatment. In cases presenting a suggestive clinical history but with inconclusive or negative physical findings, the X-ray is of the greatest value because it may definitely prove the presence or absence of tuberculous involvement. Certainly, in such cases, no negative diagnosis is justifiable without investigation by this method.



## Why the Western Climate Yields Poor Results for Some Tuberculous Cases

By H. A. BERKES, M. D., Cleveland

My purpose in presenting this paper is not to exploit some new line of treatment for tuberculosis, but rather to show why a fairly practical old method has so often brought failure, and I hope no one will gather from what I have to say that I am opposed to sending patients west, but rather that my opposition is only to the class of cases or the manner in which so many are sent and the outline of treatment they are endowed with by their family physician before they leave. Under favorable conditions and with suitable cases I am heartily in favor of the change of climate and believe there is a great possibility of benefit to be derived from it for tuberculosis cases.

It is a generally accepted fact that most any town in the west, which enjoys the reputation of being a health resort especially adapted for pulmonary tuberculosis, does enjoy this reputation because of its climate and altitude.

Colorado is usually the first state which enters one's mind when thinking of sending a patient west, and its reputation is well founded. Its elevation varies from 4000 feet on the plains to 6000 and 7000 at the foothills and 7000 to 10,000 and over in the mountains. The climate is characterized by the low atmospheric pressure, dryness of the air especially in winter and autumn, a clear atmosphere free from fogs and clouds, an abundance of sunshine with comparatively little rainfall, moderate breezes in summer and only occasional blizzards in winter. It therefore can be termed a bracing, healthful climate inviting outdoor life. Similar conditions are found in other western and southwestern states.

After one studies the climate of the western states and sums up the favorable points, they can only be considered as factors which tend to make the necessary outdoor life more agreeable and more easily followed and usually they produce a better appetite and induce more comfortable sleep. These, however, are the known physical and natural factors which the west offers us, and on first glance seem to cover all of the three cardinal requirements for the ideal treatment of tuberculosis. There is fresh

air, and plenty of it; a good or at least a better appetite, and conditions favoring better sleep; in other words, fresh air, food and rest.

My object is not to measure or to praise the conditions of climate or the natural resources found in the various western towns. I will grant that they are favorable, in so far as they themselves can be favorable, and theoretically for a case of tuberculosis none better can be found, but they alone are not responsible for the good results nor the failures in the treatment of tuberculosis. Nor can any one location be cited as a more favorable place for all cases and we have a problem to solve every time we consider sending a patient away from home, which depends on his or her individual factors before we can decide on any particular location to advise.

For the present let us leave the consideration of climate and take up some of the other factors which we agree are necessary for the tubercular to have to cope favorably with his infection. The first to consider is fresh air. Nature has been and still is generous, but unfortunately man has acquired the right to step in and say where and how one gets his fresh air. Most people, I find, have a mistaken conception of the west and believe it is populated with big hearted ranch owners who watch the incoming train with anxious hearts, hoping that some weak, sickly individual will alight, giving them an opportunity to play the part of "the good Samaritan" and that they will offer the sick one a home at reasonable rates and will help him gain back his health and vigor in a few months. The door of the west is closed to tuberculars and the natives are now suffering with "tuberculo-phobia." The literature and so-called educating the people about tuberculosis have filled them with fear and horror of the disease to such a degree that love or money can hardly buy a berth at a ranch-house now-a-days, and tuberculars are looked upon as pests of the town.

The regular boarding houses, rooming houses, and hotels even, of some of the towns ask the arrivals if they are in the town because they have tuberculosis, and an affirmative answer makes it almost impossible to obtain a room. This tuberculo-phobia (as I have termed it) has brought about more harm than good. It is true that most of the rooming houses and hotels are populated with tuberculous patients who, in order to get the room, have put up a plea that they are suffering with asthma,

bronchitis, stomach cough, or some other disease which might give a reflex cough and run the patient down, and then in order to keep the room they are forced to live up to the diagnosis they gave. The use of a sputum cup or the taking of their temperature would arouse suspicion and might be the cause of their losing their comfortable room. Instead of working together and adopting prophylactic rules and regulations the tuberculars themselves are afraid of each other and fear that they are increasing their chances of reinfection by associating in any way with another tuberculous patient, and perhaps this selfish motive is a good one. But when so many are found in one town or even in one house, how much better it would be if they would work together and try to prevent the spread of the disease and encourage the use of sputum cups and discourage the promiscuous expectoration that is usually found in the western towns. The selfish motive, the seeking for individual salvation, enters in and keeps them from even talking on such questions because they all know that should such things be suggested it would be considered a confession of being the host of the tubercle bacilli and their chances for retaining the present room or obtaining other suitable rooms would be forfeited. Of course, this is not true of the cases sent to the sanitarium; they are taught there the proper methods of trying to avoid the spread of the disease. I am referring to the cases which are sent west to take care of themselves.

There are a great many rooms which are available, but these unfortunately are not so very desirable because of poor ventilation. Often, too, these rooms have been formerly occupied by other tuberculars who have not been careful, and after their departure the rooms have not been properly fumigated or disinfected, so that they are really offering their new possessors a great chance of reinfecting themselves.

Even when some of these patients are fortunate enough to get a well ventilated, clean, good, satisfactory room it is amusing how they will go out of their way, almost, to spend hours where pure air is at a premium. This can be best illustrated by citing a case I saw in Roswell, New Mexico. A young lawyer from Cleveland had been advised to spend the winter in the west because he had pulmonary tuberculosis. A lawyer is generally considered a man of good judgment and is given credit for having at least an average amount of common sense. This chap, how-

ever, had either had it impressed upon him or had figured out that the clear balmy days in the southwest were endowed with an enormous amount of curative qualities for consumptives and that a few hours in the pure air each day would do wonders for him, or else he had no conception of what pure air is. His interest in politics, his unquenchable thirst for argument, his untiring efforts to find opportunities to exercise his vocabulary on some victim with a willing ear, or his love of hearing his own voice, kept him busy many hours every day in the smoky lobby of the hotel, breathing foul air while he wasted his energy and lost his opportunity to be out in the open where pure air would be easily accessible.

There are others who appreciate the benefits of being out in the open air during the day but have lost sight of the necessity of having pure air while they sleep. Another case sent out west by one of the Cleveland physicians illustrated this fact to me. He was fortunate enough to secure a room with two windows, one facing east and the other south. During the day he would "thoroughly air out his room," as he called it, by raising the window to the south, to its full extent, while he walked around town enjoying the sunshine. At night he would carefully see to it that no window was open more than six inches. He was possessed with a foolish notion that night air was distinctly harmful to tuberculous cases. It took a great deal of talking to get him to change his views and even then it was weeks before both windows were thrown open to their full extent and fresh air allowed to enter his room while he was in it.

A great many people and also physicians consider that it is absolutely necessary to live in a tent to recover from tuberculosis and wonder why so many tent cases fail to regain their health or perhaps why so many doctors don't insist on patients living in tents. Pitching a tent and living in it seems to be the entire instruction some patients are given, and they may know perfectly well how to pitch a tent, but have little or no conception of how to live in a tent. In the first place, opportunities for living properly in a tent are not so easily found. If the site can be found, it may be and usually is so located that it is a hardship for the patient to obtain suitable food, milk or perhaps water; if the supplies are convenient, the city or town usually has passed such ordinances as to make it impracticable to live there.

However, there are some cases around in the west who have

decided that in spite of everything they will fight it out in a tent, so they get their tent set up and move in. I looked into a few which presented this sort of a picture. A small tent with a wooden floor, furnished very plainly with a bed or cot, a table, a rocking-chair, a trunk, an oil-stove and an oil-lamp. During the day the owner saw no reason to put up the flaps because he would be outside most of the time. At night the raising of a flap might create a draft and effect the lamp, so he could not read; so there he would sit, securely buckeled in, reading, while the oil-stove and the oil-lamp burned away until it was time to retire. Then perhaps one flap would be thrown back.

These few illustrations show you how, although the patient has been told he must have fresh air, he does not know how or has not been told how to get the most or all that he can. I believe most men will agree that altitude, longitude and latitude can in no way supply a patient with pure air if he deliberately shuts himself up in a smoky, foul, hotel lobby, or within four walls of a house, or in a tent sitting alongside a miserable oil stove and lamp. There they are, starving for the want of pure air while they are in the midst of it. How can we expect to get good results when our patients are a thousand or more miles away from us, forgetting most of our advice and going on the assumption that a little fresh air taken while they are around in the sunshine is enough fresh air for any man and the hours of rest and sleep are not to be interfered with by any measures necessary to fill the place, in which rest and sleep are taken, with pure air.

Occasionally a patient is referred to some particular doctor, but more frequently they go out west and take up the task of getting well by following their own ideas of the rules and regulations necessary for a tubercular and are going on their own responsibility, until some decided complication arises which fairly drives them to a doctor. There are times, I can say with perfect safety, when the patient's determination to regulate his own life is far superior to meekly placing himself under the guidance of some of the aid offered him by the inefficient, careless and unworthy "weak sisters" of the medical profession. Very often a case not referred to any special doctor is discovered in town by some old "most cured" tubercular, as he would call himself, who gladly confides in him and tactfully leads up to the favorite little town gossip about the doctors, and generally winds up his conversa-

tion in regular advance agent style and advises strongly that the newcomer go immediately to Dr. So-and-so, because he really does things for tuberculosis. Sometimes this free advice is really worth taking, but unfortunately too often a quack or an osteopath is back of it. I remember a young girl from Iowa who took the advice to place herself under the care of an osteopath and regularly had him give her treatment, even when severe hemorrhages began making their frequent appearance. Needless to say she did not last very long.

The high altitude with its endowed power of giving a patient a deceiving sense of well being, or the old stunt of grasping at a straw, may account in some measure for the greater strength of the Christian Science church out west. Nevertheless, scores of tuberculosis patients are found in its fold. Fortunately for both the patient and the church, Christian Science does far less damage than the miserable work of some of the gold thirsty, poorly trained doctors who are not possessed with any conscience, but who, for a few dollars, will advise or in some cases give specially prepared dope that will cure tuberculosis regardless of how a patient lives, eats, or how badly off he is. The Christian Science religion quiets the mind of the patient, and the only possible harm it can do is to keep him indoors reading its literature and studying.

Another common but mistaken idea, held by a great many tuberculous cases sent away from home, is the thought they entertain that the family doctor advised them to go away because he had given up hope for them, and any medical help tried would be without benefit and that the only possible hope of prolonging life would be by some lucky chance out west. When they get in that state of mind they usually go on to the next step and begin thinking that perhaps some cure has been discovered which the highly esteemed doctors have not as yet accepted. They find themselves in a receptive state of mind, so that all new "sure cures" appearing in the daily papers or pamphlets distributed throughout the city are eagerly read, and they easily become the willing victims of the medical fakers. The general outline of treatment for tuberculosis is known fairly well by most laymen, but it requires a trained man to direct any individual case in order that the best possible results be obtained. Allowing a case to manage himself or to fall into the hands of charlatans very often throws dis-

credit on a perfectly good climate and discourages others from going away from home.

Most of the patients have instructions to get as much rest as possible, and it is left to them to interpret the meaning of the word rest. To a great many, rest means sleeping, and eight to ten hours of sleeping meets that requirement. They say they see no sense of trying to sleep during the day when nature has kindly set aside the night with its darkness and cool breezes and stillness as the most fitting time to sleep. In order to gain strength and sleep well at night, they believe that they must exercise; and while doing so they must not be foolish and give in to the feeling of being tired, but be plucky and drive themselves on to work, and they will be especially benefitted if this be done in the open air. This they do regardless of their temperature or general weakness. Others have a better idea of rest, but even so don't know where to take it. So they figure sitting down to a quiet poker game in some cigar store, or spending hours in a dark, dingy, or poorly ventilated moving picture theatre where numerous people are packed in and a chorus of coughing and spitting accompanies each film, is getting rest.

Another class of patients frequently met all through the west, are the unfortunate chaps who are "chasing a cure," as they call it. For years, perhaps, they have been traveling from this place to that, wherever some kind hearted individual advises them to go. They are usually nervous, restless, anxious but hopeful individuals who never stay in one place long enough to get thoroughly settled. In fact, they spend all their time and a great deal of money seeking some mysterious immune zone which they feel confident must exist on this earth, and that at this wonderful spot their particular breed of infecting organism cannot live. They must be on the go, jumping from here to there, until by some peculiar sensation they will realize they are at last in the right place for them. As a rule these patients do not go in short jumps either, but take long, tiresome trips by train, stage, horseback or automobile to various altitudes and climates, never trying to save their strength, but only trying to reach this one spot which God has created for them, feeling sure that to reach it means health once more.

By rest do we mean only reducing the actual amount of muscular effort or energy to a minimum, or do we mean it in a broader sense than that? Unless we include mental rest, we are

sure to invite failure. Often we find it absolutely necessary to advise a change of climate in order to get a patient to give up his business cares and worries. But this question must be looked into from both sides and care must be used not to cause worry or anxiety to be a result of the change of climate. A case sent west, who has a very limited amount of wealth, may find the effort of trying to secure room and board and pay transportation out of his small resources a cause of endless worry and loss of many hours of sleep. Or he may try to reduce the cost of living one way or another and proportionally, if not more so, reduce the efficiency of the change of climate.

Worry over the financial question is not the only one to guard against. Young girls, especially, and those of unlimited means or at least sufficient means to secure all the requirements which money can purchase, may suffer with homesickness and the longing for companionship and be especially sensitive to the idle but cutting remarks so frequently heard about tuberculars out west. Thus they may soon lose their good appetite and sound sleep and be worse off in the west than in the east.

Many cases start west with the idea that they can easily secure work, and that all they have to do is to get there and then their road to health will be smooth and easy. Their first effort is spent in trying to secure out-of-door work, but that is not always easy. Then they take any kind of work, and often take such work as is unfavorable, and secure small salaries for it. If one watches these cases, he finds them working along for months and gradually running down, until the disease reaches a stage where it demands that they give up and rest. After resting a period of time, perhaps they may be able to start working again; but these patients go on, half working, half living for years perhaps, but all the time being tuberculous until the disease finally wins out. Some are obliged to take positions in stores or offices where the air is not as good as that outdoors and perhaps sunlight seldom enters. If work is absolutely necessary, I think all will agree that, providing the revenue of it is sufficient to secure suitable sleeping quarters and good, substantial food, and the work is not in itself too much of a tax on the patient, there is better chance of recovery in the west than in the east. But the same cases, with proper rest, and good air day and night, and good food, have a much more rapid and efficient improvement without the work.



Suitable food is as important as any or all of the other conditions, and without good food the outlook is hopeless regardless of altitude, sunshine, fresh air and rest. The average boarding house in the west is no better, if as good, as the average one in the east and most of them serve such food that a healthy man can hardly eat it and keep healthy, much less a sick man gain on it. Of course, if the patient has money enough and can find a suitable place to spend it for food, he may be fortunate enough to get good food. If he has some member of his family or some friend with him who can cook, the problem is not so difficult because food in the raw state can be found most anywhere. It is the hopeless, tasteless messes, with little nutritive value, that most boarding houses make of the raw food, which fill one's heart with pity when he sees a poor chap leading a boarding house life trying to gain strength and health. Few patients have any conception of what good food is. Some try living on eggs and milk; others plain meat diet; others fruit diet; and still others various peculiar combinations either on a chemical basis, time basis, or a caloric basis. Unfortunately the doctors, both in the east and west, pay little attention to the matter of food.

Another very unfortunate procedure often practiced is that of hustling a patient west before clinical evidence of possible benefit to be derived or even expected by such a change has been estimated. Thus hopeless cases are sent away to die.

The physical findings and all the elaborate detailed descriptions of the existing pathological condition are of little or of no aid in forming any prognosis of value. We have all seen, I believe, cases with but few physical signs and comparatively small pathological lesions, go a progressive course to a fatal end, and also cases with marked lesions and findings make a wonderful recovery. Both extremes we say are due to the patient's power of resistance, and when we get all through discussing the treatment of tuberculosis we can sum it up in a few words and call it "raising the resistance."

The west then can be truthfully credited with offering a patient suffering with tuberculosis better opportunities for out-of-doors life, pure air, more comfortable sleeping, usually a better appetite; it gives greater possibilities of removing a patient from the every day cares of his or her business; it gives new surroundings, new interest in life and generally more hope to the patient. But it offers all this at certain appreciable sacrifices, and we as

physicians must estimate these sacrifices and see if the known possible good to be derived is enough to encourage the patient to make the necessary sacrifices. We must study the patient and his circumstances, keeping in mind that first of all it takes money to get out west and also to live there after getting there. Along with money it often takes nerve and persistence to get a suitable room. And remember that in all probability the food he will get is inferior to home cooked food. Then we must consider the mental attitude of the patient; how he or she will stand breaking up home ties; how they will mingle with strangers; if there is a tendency to homesickness; how they will be affected by various tubercular stories they will hear; and the amount of good common sense they possess with which they will be guided through the months of enforced rest.

It is then not so much the western treatment of tuberculosis as it is the tubercular's treatment of the west. A great many failures or discouraging results are not due so much to the west, but rather to the patient's having an abundance of faith in the climate and no conception of the other requirements. This most likely can be thrown back on the doctor who, rightly perhaps, advised a change of climate, but did not try to teach or at least did not succeed in teaching the patient the proper way of treating the west after he arrives there. This same criticism of the indefinite instructions given to cases sent west is true of the cases sent to the eastern mountains and also of a great many fatal cases right here in Cleveland.

## Tuberculous Scleritis

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It is the object of this paper to present two cases of tuberculous scleritis, together with a brief review of the literature concerning this affection.

While scleritis is of very great importance as regards the changes which it may produce in the eye, and the attendant lowering of vision, it is, fortunately, of but rare occurrence. Uhthoff<sup>1</sup> found that but 0.44 per cent of the eye cases coming to his clinic were inflammations of the sclera. Albrand<sup>2</sup> reported that of the 13,200 cases treated in Schöler's eye clinic, 53 or 0.4 per cent were cases of scleritis. Goldzieher<sup>3</sup> estimated that cases of inflamed sclera formed 0.35 per cent of the total number of cases he had studied. From the University of Budapest in 1905, Török<sup>4</sup> reported 35 cases of scleritis among 11,380 eye patients, i. e., 0.3 per cent. This same author in 1907 found 29 cases of scleritic inflammation among 10,457 eye patients, i. e., 0.28 per cent, in the New York Ophthalmic and Aural Institute.

Scleritis is seen mainly in young adults, says Fuchs<sup>5</sup>. Of Török's fifteen patients, four were from 10 to 20 years of age, six were from 20 to 30 years old, and five were from 30 to 50 years. Females are more frequently affected than males, twelve of Török's patients being females and three of them males, while all of Verhoeff's<sup>6</sup> thirteen patients were females. Disturbances of menstruation appear to be a predisposing cause in females.

Superficial and deep forms of the inflammation are described, though as Parsons<sup>6</sup> contends, the cases of superficial inflammation may well be considered less severe forms, and the cases of deep inflammation more severe forms of scleritis. Krüchmann<sup>7</sup> also considers that the division of the disease into the superficial and the deep forms is purely arbitrary. Fuchs says that the only essential difference between these two forms is that the deep form involves other parts of the eye than the

<sup>1</sup> Uhthoff: *Archiv f. Ophthalmol.*, 1893, III, 168. Ibid., 1900.

<sup>2</sup> Albrand: *Deut. med. Wochensch.*, 1895.

<sup>3</sup> Goldzieher: *Lehrbuch der Augenheilk.*, 1898.

<sup>4</sup> Török: *Archiv of Ophthalmol.*, XXXIX, 230.

<sup>5</sup> Fuchs: *Text Book of Ophthalmol.*, 1911, p. 320.

<sup>6</sup> Parsons: *Diseases of the Eye*, 1907, p. 278.

<sup>7</sup> Krüchmann: *Lehrbuch d. Augenheilk., von Th. Axenfeld*, 1909, s. 440.

<sup>8</sup> Verhoeff: *Boston Med. and Surg. Jour.*, 1907.

sclera, almost all parts of the eye suffering, while the superficial form is confined to the sclera. He found that these two varieties are not by any means sharply distinguished from each other, but that many transition forms occur. One cannot, in the living eye, see how far the inflammation penetrates into the sclera. It can only be inferred, indirectly, from the subsequent thinning of the sclera, and from the spread of the inflammation to the subadjacent uvea, that the inflammation extended deeply.

It is the form of scleral inflammation attended by involvement of other structures of the eye, which is here to be considered. Fuchs describes two varieties of this form: one in which the swelling of the sclera forms separate prominences, and another which is more frequently seen, in which the swelling is not so sharply circumscribed, but is more diffuse. Parsons is of the opinion that the nodular form is more frequently seen than the diffuse swelling, these nodules being, however, much less circumscribed than in the cases of slight involvement. Verhoeff saw more or less definite nodules in all of his cases. During the subsidence of the affection, after the nodules had disappeared, he found the diffuse form frequently simulated, so it is probable there is no real distinction between the two forms. This author believes that the nodules of scleritis seldom merit the name, since they most often appear simply as elevated areas in the sclera. They usually reach considerable size, and are situated at a considerable distance from the cornea, most often perhaps where the anterior perforating vessels enter the globe. An extensive diffuse swelling, of bluish red color, may be seen in the circumcorneal region, extending entirely around the cornea, forming a very serious condition known as annular scleritis. In exceptional cases the inflammation is not situated in the anterior segment of the eye, but farther back, either in the equatorial region, or actually in the posterior segment of the eye ball.

The authors of the older literature of scleritis were all agreed that it was a symptom of some general disease, often the first symptom. Most of them believed that gout and rheumatism were the commonest causes, and Michel<sup>9</sup> looked upon the nodule of the sclera as a true gouty nodule, when gout was the etiological factor. Krüchmann held that in gouty cases attacks occurred similar to the ordinary attacks of gout. Not only was articular rheumatism of all forms considered as causing scleritis,

<sup>9</sup> Michel: *Lehrbuch d. Augenheilk.*, 2 Auflage.

but also muscular rheumatism, previous, or present at the same time as the scleral inflammation (Albrand). Goitre, malaria with nerve involvements, gonorrhoea, and sepsis were also believed to be causal, as were leprosy and actinomycosis. Scrofula, tuberculosis, and hereditary lues were given as unusual causes. It is suggestive that Albrand could find no cause for fourteen of the cases he saw. Michel, while believing in gouty scleritis, felt that the majority of the cases were of syphilitic or tuberculous origin. In 1907 Verhoeff announced that he was convinced that scleritis is almost always a tuberculous process. In each of his cases he secured a positive tuberculin reaction. Later Török stated that it was his opinion that tuberculosis is the main, and most probably the only, etiological factor in the disease. He used tuberculin injections for diagnosis in fourteen of his cases, with positive reactions in twelve of them. Against the contention that scleritis is a tuberculous process, the assertion was made that it probably was not tuberculous, because the injection of excised nodules into rabbits failed to cause a development of tuberculosis in these animals. Török replied that it was not possible to accept negative results as conclusive, and that many injections of undoubted tuberculous material had been attended with negative results. Other investigators positively excluded tuberculosis because of the absence of the characteristic histological picture of tuberculosis, and also because tubercle bacilli could not be demonstrated. Török stated that a focus of infection might well be tuberculous, and yet present a histological appearance which makes it impossible to say that it is or that it is not tuberculous. Certain portions of the focus might be characteristic, and other portions not. If the sections should not include the characteristic portions, a negative opinion might be given of a really tuberculous tissue. Concerning the inability to demonstrate tubercle bacilli in the nodules, this author says that the bacilli are always difficult to demonstrate in tissue. There are difficulties in staining and the search must be careful. Axenfeld and Peppmueller<sup>10</sup> made 120 serial sections of a tuberculous skin ulcer without finding tubercle bacilli, and then the succeeding sections contained them. An epibulbar tumor from the same patient was sectioned, and only after fifty sections were made, could the tubercle bacilli be demonstrated.

<sup>10</sup> Axenfeld and Peppmueller: *Ber. d. ophthal. Ges., Heidelberg*, 1898.

Stock<sup>11</sup>, for the purpose of studying the tuberculous diseases of the eye, injected living tubercle bacilli into the ear veins of rabbits. Various results were obtained: cyclitis, iritis, disseminated choroiditis, scleritis, interstitial keratitis, tuberculosis of the conjunctiva, etc. Occasionally a sclerotic nodule was the first symptom of the eye infection.

Of Verhoeff's thirteen cases, evidences of tuberculosis of the lungs or elsewhere were made out in but three cases. In five of Török's fifteen cases, tuberculosis was present in some other part of the organism.

At least three of Verhoeff's patients showed exacerbations during the menstrual periods, which is usual also in other forms of tuberculosis. This no doubt explains why scleritis was sometimes attributed to menstrual disturbances. Perhaps also, it explains why scleritis is more common among females, since the lowering of the resistance during menstruation no doubt increases the likelihood of metastases.

The question of the location of the primary focus of infection in scleritis has caused much discussion. Fuchs mentions, as a very rare complication of parenchymatous keratitis, a diffuse scleritis in the circumcorneal region, subsequently giving rise to scleral ectasis. It is much more common for the inflammation in the sclera to involve the cornea, however, than for the corneal inflammation to invade the sclera.

Though it is considered that most commonly the iris and the choroid are affected by an extension of the inflammatory process originating in the sclera, yet many authors assume that the primary focus may be in the uvea. DeSchweinitz<sup>12</sup> has described cases in which he considers the choroid primarily affected, and the sclera secondarily. Burnett<sup>13</sup> has said that unquestionably some cases begin in the ciliary body, as evidenced by the intense inflammatory symptoms preceding by a considerable interval the appearance of the staphyloma. Treacher Collins<sup>14</sup> believes that the sclerotic is not infrequently invaded by tubercle of the uveal tract, but doubts that the sclera is ever the seat of the primary focus in tuberculosis of the eye. Parsons is uncertain whether the accompanying uveitis may be a result or a cause of

<sup>11</sup> Stock: *Graefe's Archiv. f. Ophthalmol.*, LXVI.

<sup>12</sup> DeSchweinitz: *Symposium of Uveitis*, 1902, pp. 8 and 16.

<sup>13</sup> Burnett: *System of Diseases of the Eye*, Norris and Oliver, 1900, XXX. p. 249.

<sup>14</sup> Treacher Collins: *Ophthalmoscope*, 1907.

the scleritis. He says that most probably it is neither, but that both are due to a common cause. By injecting animals with living tubercle bacilli, Stock found that in some instances a sclerotic nodule was the only symptom of the eye infection. Neither vitreous opacities, nor patches of choroiditis could be found clinically, but subsequent histological examination showed the scleritis to be secondary to a focus of uveal tuberculosis. The changes in the choroid were situated so far forward that it was impossible for them to be seen ophthalmoscopically. In other instances, where typical scleritis and sclerosing keratitis were present, the inner layers of the choroid were not involved.

Scleral inflammation does not lead to disintegration of the inflammatory products, but to their disappearance by resorption, with the formation of a dark colored cicatrix. This inflamed portion of the sclera may become gradually attenuated, and no longer able to resist the intraocular pressure even though this does not exceed the normal amount, ectasis of the diseased portion occurring. The entire circumcorneal zone of the sclera may become more and more dilated, and as a result the cornea together with the adjacent portion of the sclera is projected forward so that the eyeball is elongated in a sagittal direction, and becomes pear-shaped. Gibbous protrusions of the sclera may occur. These are circumscribed protrusions of the thinned out spots, raising them above the level of the healthy sclera, so that there are seen rising about the cornea a number of humps, which because of their thin walls show the dark pigment shining through.

The more intensely the sclera is inflamed, the more sure we are of finding inflammatory changes not only in the adjacent cornea, but also in the uvea, and especially in the choroid. Among the fifteen cases seen by Török, there were thirteen with corneal complications. Verhoeff saw interstitial keratitis in eleven of his thirteen cases. Sclerosing keratitis is a characteristic corneal involvement in scleritis. Opacities develop in the cornea at its margin, the appearance suggesting encroachment of the sclera upon the cornea, the margin of which becomes crenate. In the nodular form of scleritis, the marginal opacity often develops near the nodule. Similar opacities may develop farther from the margin, and even at the corneal center. In none of these cases does the corneal opacity entirely disappear, and a considerable residual opacity remains in cases of long standing. The scleritis

often clears up more rapidly than the keratitis. Burnett found in all of his cases a permanent alteration of the curvature of the cornea as shown by the ophthalmometer.

Iritis with the formation of posterior synechia is a common complication of scleritis. Occlusion of the pupils is very rare, and hypopyon never occurs. The iris may become atrophic, in cases of long duration. The inflammation of the choroid lies chiefly in the anterior portion, and may cause lowered vision through the accompanying opacities of the vitreous. Lenticular opacities are of rather exceptional occurrence. Myopia of high degree is an infrequent sequel, and is occasioned by elongation of the axis of the eye. The tension of the eye may be elevated, due to scleral ectasis.

Verhoeff, in four cases, found the essential lesion of the sclera to be a focal proliferation of epithelioid cells among which an occasional giant cell occurred, the whole being surrounded by an infiltration with chronic inflammatory cells. Caseation was entirely absent. Numerous sections were unsuccessfully examined by him for tubercle bacilli. Zimmerman<sup>15</sup>, in a beginning case of scleritis, was able to demonstrate tubercle bacilli. The cornea examined histologically, shows in its anterior layers quite a large infiltrate, the sclerosing keratitis. In its posterior layers can be made out files of cells, which follow the deep-seated, new-formed blood vessels. The ciliary body was in some instances found to be atrophic, and the ciliary processes in particular were greatly diminished in size.

The diagnosis of scleritis is easily made by the subcutaneous injection of tuberculin. Verhoeff gave all of his thirteen patients diagnostic injections of tuberculin, and all of them reacted positively. They all showed a general reaction, and nine of them also a local reaction. Török injected diagnostic doses of tuberculin into fourteen of his patients and secured twelve positive reactions, all of these twelve showing a general reaction, and seven also a local reaction. The local reaction was noticeable in the increase of injection, photophobia, and pain. In some cases the conjunctiva became injected, chemotic, and the secretion increased.

Deep scleritis formerly almost always affected both eyes, and its course was a protracted one, lasting sometimes for years, treatment not influencing its course. In most cases there was a

<sup>15</sup> Zimmerman: *Axenfeld (Lubarsch-Ostertag)*, 1906.



tendency to recurrence. The prognosis under the therapeutic use of tuberculin is very favorable, the course being shortened, and the complications and sequelae to a great degree eliminated. In the four cases treated by Verhoeff with tuberculin, the ocular inflammation subsided in from six weeks to two months. The ten cases of Török receiving full treatment were perfectly cured, and no relapse occurred. This prognosis differs greatly from that under the old symptomatic method of treating these cases when dense corneal opacities, occluded pupils, opacities of the lens and vitreous, and glaucoma were but too common.

The treatment consists in keeping the patient out-of-doors and at rest, especially during the earlier part of the treatment. The nutrition should be considered, and the amount of food taken may perhaps need to be increased. Tuberculin is employed, therapeutic doses being injected subcutaneously, over considerable periods of time. Local treatment aside from atropin is usually not required.

The first of the two cases of tuberculous scleritis to be reported, is that of a male patient of 33 years of age, referred some months following the onset of an affection of the left eye. Four years before he had an attack of choroiditis in this eye from which he recovered. His family history was negative as regards tuberculosis, and he had suffered only the illnesses of childhood.

In the vitreous of the left eye were dense opacities, and only a slight fundus glow could be seen. The iris and ciliary body were inflamed, and there was a slight hyphemia in the deepened anterior chamber. On the posterior corneal surface were large grayish deposits, and up and out from the cornea, at about 5 mm from the limbus, was a scleral nodule the size of a pea, of somewhat yellowish appearance, hard, and painless. The tension of the eye was minus 1. He could see hand movements.

The Wassermann and Noguchi reactions were negative. Physical examination did not reveal tuberculosis elsewhere in the body. His weight was 137 pounds. A subcutaneous injection of 1 mgm of Koch's old tuberculin was given for diagnosis, but the reaction was negative. An injection of 2 mgm was then given, and a positive reaction followed.

Rest and out-of-door life were impossible for this patient. He was employed in a shop and could not give up his work. His diet was given some supervision, and he spent out-of-doors all the time he was not at work, sleeping in a window tent. Treatment with tuberculin was given for four months. For a time he improved, his weight increased to 150 pounds, and he could count fingers at one foot. At about the middle of the treatment, his vision became lower, a cyclitic exudate appeared behind the lens, and the lens became cataractous. The scleral nodule disappeared without leaving a trace of its former presence. The eye has remained quiet for two years.

The second case of tuberculous scleritis to be reported is that of a female, aged 18 years. The disease began in the right eye about two years ago the left eye becoming involved some months later. The family history, as far as it could be learned, was negative as to tuberculosis. The patient reported having had none but the diseases of childhood.

The right eye is quiet. The sclera of the ciliary zone is of a delicate blue appearance. The corneal margin is a little crenated, and the corneal

surface of less than normal luster. There is a diffuse general opacity of the cornea, and also foci of denser opacity, the most dense of the latter lying somewhat down and out from the pupillary area. Deep corneal vessels are present.

The anterior chamber is somewhat deep, and the iris somewhat atrophic, though the pupil reacts. The tension is minus.

In the lens and vitreous are no opacities. The fundus hazily seen through the corneal opacity is normal.

The refraction of the eye is plus 1 D. S. with plus 4.50 D. C., axis 50 degrees, and with this correction the vision is 5/18 partly.

The left eye is inflamed. The circumcorneal zone of the sclera is of a violaceous color, and there is a ciliary injection. This region of the sclera is swollen diffusely and the cornea is projected forward. A suggestion of nodule formation is seen in this swelling, up and out from the cornea.

The corneal surface is less bright than normal. Three varieties of corneal opacity are to be seen: a diffuse opacity; areas of greater opacity lying principally in the temporal half, the most dense of these adjoining the area of greatest scleral swelling; on the posterior corneal surface are large lardaceous deposits. Deep corneal vessels are present.

The anterior chamber is deep. A few dilated vessels lie upon the surface of the iris, and on the pupillary margin of the iris are a few small nodules. Some tags of iris pigment are attached to the anterior lens capsule. The tension is minus.

The vitreous is clear. Seen through the hazy cornea, the fundus was normal.

The refraction of the eye is plus 5 C. axis 125 degrees, and with this correction the vision is 5/24 partly. The cornea is irregularly astigmatic.

The physical examination of the patient, together with radiographs of the chest, has shown the patient to be the victim of pulmonary tuberculosis. The Wassermann reaction was negative.

Treatment is being carried out by one of the city tuberculosis dispensaries. Tuberculin will be administered.

The impression is that in the first of these cases the primary focus was in the choroid, the sclera being secondarily involved. The scleritis was of the so-called nodular variety. It was unfortunate that the patient could not give up his work in a dusty shop, and devote himself to the proper regimen, tuberculin alone not being sufficient for cure. Probably the advanced stage reached before the patient came under treatment, was a factor in the unfavorable result.

The second case is one of annular scleritis, beginning in the right eye and later involving the left eye. The long course of the disease, and the infection of both eyes, is typical of those cases which are untreated, or are not treated as tuberculous infections. That the primary focus was in the sclera, the cornea and uvea being secondarily involved, was shown in the left eye by the sclerotic signs preceding all others.

## Review of Pharmacology

By J. D. PILCHER, M. D.

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**The Relative Toxicity and Excretion of Methyl and Ethyl Alcohols:** Pharmacologically it is well known that the toxicity of the alcohol series increases with the molecular weight (that is, with the increasing number of  $\text{CH}_3$  radicles), until a point is reached at which the hydrocarbon becomes almost or quite insoluble and hence inactive. However, there is a popular belief—among medical men as well as the laity—that methyl (wood) alcohol is more toxic than ethyl alcohol. This holds true in subacute poisoning only, i. e., after about twenty-four hours. Within six to twenty-four hours ethyl alcohol is roughly 10 per cent more toxic than methyl. A partial explanation of the greater toxicity of methyl alcohol in subacute poisoning is as follows: Under ordinary conditions ethyl alcohol is rapidly and almost completely oxidized in the body; not more than 2 per cent is excreted unchanged (by the lungs and kidneys). The case is quite otherwise with methyl alcohol, which is largely oxidized to formic acid<sup>1</sup>. The acid is readily excreted by the urine but the excretion reaches its maximum only after four days, which means that methyl alcohol or some intermediate product remains in the body during a period of several days. Recently, Völtz and Dietrich<sup>2</sup> have determined the excretion of methyl and ethyl alcohol administered to dogs. In twenty-four hours 15.3 per cent of the introduced methyl alcohol (2.0 ccm per kgm) was recovered (mainly from the expired air, to a lesser extent from the urine); in forty-eight hours there was a total excretion of but 24.3 per cent, while 36.8 per cent was recovered from the cadaver, leaving but 39 per cent oxidized in the body. With equal quantities of ethyl alcohol (2.0 ccm per kgm), within ten to fifteen hours 2 to 4 per cent was recovered from the expired air and 0.4 to 3.8 per cent from the urine; from two cadavers 25 per cent was recovered ten hours after administration; from four cadavers but 3 to 12 per cent fifteen hours after administration. Thus practically the entire quantity of intro-

<sup>1</sup>Pohl: Über die Oxydation des Methyl und Aethylalkohols im Tierkörper. *Arch. f. exper. Pathol. u. Pharmakol* 1893, XXXI, 281.

<sup>2</sup>W. Völtz und W. Dietrich: Beteilig. d. Methylalkohols u. Aethylalkohols am ges. Stoffumsatz. *Biochem. Zeitschr.*, 1912, XL, 15.

duced ethyl alcohol was either oxidized or excreted within twenty hours.

**The Excretion of, and Habituation to Heroin:** Administering heroin subcutaneously to rabbits and dogs, Langer<sup>3</sup> reports the following observations. Heroin is excreted almost exclusively by the urine; only a small part appears in the feces. With habituation it is destroyed in increasing quantities, so that none can be found in the urine or feces. It may be mentioned that morphin also is largely destroyed in habituated animals. The habituation to heroin is purely against its narcotic action, for the sensitiveness of the animal to the convulsant action remains unchanged; and consequently the lethal dose is also unchanged, for asphyxia subsequent to the spasmodic fixation of the respiratory muscles is the cause of death. One animal was narcotized during thirty hours by 25 mgm per kilogram (about  $\frac{1}{4}$  grain per pound); but five successive doses reduced this period to two hours. When convulsions were prevented by ether, the average lethal dose was doubled.

The excretion of, and habituation to heroin (di-acetyl-morphin) differ from that of morphin; morphin is largely excreted by the alimentary canal; with habituation the minimum lethal dose of morphin is greatly raised; with habituation the narcotic action of heroin seems to be lessened relatively sooner than that of morphin. Codein (methyl morphin) is largely excreted by the kidneys, as with heroin; very slight tolerance is produced to it.

**The Influence of Water Drinking With Meals:** It seems to be generally believed by many medical men as well as by the laity that the drinking of water with meals is distinctly harmful. Investigations in the healthy human subject by Mattill and Hawk<sup>4</sup> show very clearly that the drinking of large quantities of water (up to 1000 ccm) with meals is distinctly not only not harmful but is somewhat beneficial. It must be understood that the water was taken only when there was no food in the mouth and not used to wash down unmasticated food particles. A brief statement, as cited by Hawk, of the effect of water on the digestive juices may be of value. *Saliva:* The drier the food the

<sup>3</sup> Hans Langer: Über Heroin-ausscheidung und-gewöhung. *Biochem. Zeitschr.*, 1912, XLV, 221.

<sup>4</sup> H. A. Mattill and P. B. Hawk: *Jour. Amer. Chem. Soc.*, 1911, XXXIII, 1978.

greater is the amount of saliva secreted; but as in this investigation the water was not taken with the food, it could have little effect on the total secretion of saliva.

*Gastric Juice:* Water in comparatively large quantities (400-500 ccm) causes an increase in the total amount of secretion, and the secretion is more acid. Small amounts of water (100-150 ccm) have very slight if any effect.

*Pancreatic Juice and Bile:* The secretion of pancreatic juice is excited by amounts of water too small to induce gastric secretion; with larger amounts the larger secretion of gastric juice secondarily increases the quantity of pancreatic and biliary secretion.

*The Effect of Dilution upon the Enzyme Activity:* As the end products of gastric digestion tend to lessen the action of the ferments, removal of such products by dilution would force the reaction toward completion. This fact, as well as the increased acidity, explains the increased activity of the gastric juice with water drinking.

*The Rapidity of the Passage of Food as Affected by Water:* That water does not hasten the passage of food from the stomach is shown by the following facts: Cohnheim has shown that the gastric contents are not mixed with the ingested water, and that water taken on a full stomach passes along a trough in the lesser curvature through the pylorus without at all mixing with the food. In Hawk's experiments the ingested water was voided in the urine usually in about forty-five to ninety minutes.

To turn to the experiments: At their usual meal time, two healthy men were given food containing definite quantities of fat, proteid and carbohydrate constituents. After a control period of three to ten days they drank definite quantities of water at each meal (1000 ccm in one series and 500 ccm in a second) during a similar period, followed by a control period without the water. The total quantity of fat, proteid (nitrogen) and carbohydrate residue in the feces was determined during the three periods. The results are stated as follows: With the ingestion of 1000 ccm of water less fat, nitrogen and carbohydrate were recovered from the feces than during the control period, indicating a more perfect utilization of food, which also persisted during the control periods following the ingestion of water. The subjects remained in good health and gained slightly in weight and this weight was not subsequently lost. Both subjects re-

ported that the feeling of lassitude and fullness after meals was not noted after the second day. With smaller amounts of water (500 ccm) there was more perfect utilization of the fat and carbohydrate but the nitrogen balance remained as during the control period. A decrease in the excretion of fecal matter, both dry matter and moisture, was also noted. Following the period of observation one of the subjects continued the use of large quantities of water at meals and remained in perfect health.

**“A Critical Review of the Digitalis Preparations Employed in Medicine”:** Under this heading Dixon<sup>5</sup> presents the later conceptions of the chemistry and physiological actions of digitalis and its principles and discusses a number of proprietary digitalis preparations which are claimed to lessen the objectionable properties of the digitalis preparations. Digitalis contains two active principles, digitoxin and digitalin (the former a glucoside, yielding glucose on reduction; the latter a pentoside, yielding pentose on reduction) and a saponin constituent, digitonin, which has no cardiac action but renders the active principles soluble in the infusion (Kiliani states that digitalis contains only the merest trace of digitonin). It may be stated here that the dose of digitalin recommended is much larger than used ordinarily. “In acute cardiac cases  $\frac{1}{2}$  grain in solution may be administered every four hours for two to three days without causing cumulation; and  $\frac{1}{4}$  grain doses may be continued for weeks without harm.”

The pharmacological actions of digitalis are too well known to merit discussion; but as the proprietary digitalis preparations are said to lessen the objectionable features of digitalis and its preparations a brief statement will be made of these features, viz., “they derange appetite and digestion, they are too irritant for injection purposes and tend to cumulate in the system, and their action is developed too slowly to be of immediate value in acute cardiac conditions.” Professor Dixon concludes that the three most important proprietary preparations, digalen, digipuratum and digitalone, have failed to overcome the mentioned objectionable features.

*Digalen* is said to be a water soluble form of digitoxin. It is far too irritant to employ hypodermatically and intramuscular injections are not without considerable pain and inflammation. While a rise in blood-pressure within twenty-four hours has

<sup>5</sup> W. E. Dixon: *Quarterly Jour. of Med.*, 1912, 297.

been reported, the evidence seems to show that this is vascular in origin and not cardiac, and evidence is lacking to show that digalen causes earlier pulse changes and diuresis than digitalis; clinical observations show little lessening of cumulative effects. Experimental evidence shows that while it is less toxic than the digitalis principles it is also less active therapeutically.

*Digipuratum* is a powder containing the active principles of digitalis and only 15 per cent of the inert matter; it is insoluble in cold water and dilute acids but soluble in sodium bicarbonate (0.1 per cent). "The four virtues which can be assigned to *digipuratum* are that it keeps well, it is uniform in composition, it contains all the glucosides of value in digitalis and causes less gastric irritation than the powdered leaves. However, it is quite doubtful whether these virtues excel those of a standardized digitalis tincture and its chief value, the absence of inert matter, is scarcely offset by its far greater cost."<sup>6</sup>

Clinical evidence does not show *digitalone* to possess sufficient merit to warrant its substitution for digitalis. These preparations have been studied in Dixon's laboratory by Cow<sup>7</sup>, who states that none of these are superior to the tincture of digitalis. His experiments consisted of direct perfusion of the excised rabbit's heart and of the determination of the absorption from the cat's intestine. *Digipuratum* was found to be somewhat more toxic than the tincture when perfused through the excised heart but very markedly decreased the coronary flow, about six times more than the tincture; it slowed the heart more than the tincture but left the amplitude of the excursion about the same as the latter. Digalen is somewhat less toxic on the excised heart than the tincture; causes about the same increase in amplitude of excursion but has very little vagus effect. *Digitalone* was much inferior to the tincture.

Eggleston and Hatcher<sup>8</sup> have recently shown that digalen, *digipuratum* and *digitalysatum* are no less actively nauseant and emetic "in proportion to the cardiac activity than any of the better known and less expensive galenic preparations of digitalis and *strophanthus*."

In view of the clinical and pharmacological evidence there would seem to be no reason for substituting these preparations for a good digitalis tincture.

<sup>6</sup> Quoted from Eggleston and Hatcher<sup>8</sup>.

<sup>7</sup> Douglas Cow: *Biochem. Jour.*, 1912, VI, 219.

<sup>8</sup> Cary Eggleston and R. A. Hatcher: *Jour. Amer. Med. Assn.*, 1913, LX, 499.

**The Seat of the Emetic Action of Apomorphin.** After detailing a review of the literature of the emetic action of apomorphin Eggleston and Hatcher<sup>9</sup> give their evidence which shows conclusively that apomorphin causes emesis by acting upon a central controlling mechanism. One of their quotations is well worth reciting; in 1869, when the drug was discovered, Gee remarked "it is clearly an emetic which does not act by causing direct gastric irritation (subinflammation), but which acts as blows upon the head, foul smells or sights, or imaginations act." The more striking points in the evidence are as follows: If emesis were the result of a local gastric reflex one would expect it to result from a smaller dose introduced directly into the stomach than when it reached this organ through the circulation. However, the dose by stomach tube is respectively 125 and 95 times larger than by vein and intramuscular injection. Vomiting occurs much more rapidly after intramuscular than after gastric administration. Moderate dilution does not influence the size of the effective dose, which would hardly be the case if irritation of the gastric mucosa were the cause of the emesis. After intravenous and intramuscular administration no apomorphin was found in the vomitus. This was proven by an ingenious method. A large dog was given the drug several times intravenously, each dose sufficient to produce emesis. The vomitus was collected, evaporated to a small bulk and injected into a much smaller dog with no signs of vomiting; suitable doses of apomorphin had produced emesis immediately preceding and following the injection of the vomitus. After a single large intramuscular injection no apomorphin was found in the vomitus by a similar test. Finally, apomorphin can produce all the symptoms of vomiting (excepting of course the actual expulsion of the gastric contents) without the presence of a gastrointestinal tract. This was proven by excising the stomach and intestines without development of shock and in such animals the salivary and muscular phenomena "proceed exactly as in the normal animal, so that we can say unhesitatingly that no one who might see a normal dog and an eviscerated one vomit could distinguish the normal from the eviscerated animal so far as the vomiting act is concerned." They have also shown, by the same method, that the emetic action of the digitalis substances is central; this experiment has been confirmed in this laboratory.

<sup>9</sup> Cary Eggleston and R. A. Hatcher: The Seat of the Emetic Action of Apomorphin. *Jour. Pharm. and Exper. Therap.*, 1912, III, 555.



## Diphtheria Carriers

By S. C. LIND, M. D., Medical Inspector of Public Schools, Cleveland.

With the recent literature so filled with reports of diphtheria carriers, their menace to the community, and various methods employed in freeing them from the bacilli, it may be of at least local interest if a brief report is made of carriers discovered in two of our public schools. No sooner had the schools opened last fall than a veritable epidemic of diphtheria began. It will be remembered that from October until December there was considerable agitation both in the profession and among the laity over the large number of cases of diphtheria reported. The majority of those attacked were school children, which made the outbreak of peculiar concern to the school medical inspectors.

Diphtheria first appeared in Scranton school, September 27, in Room 8, and except for one case developing after October 16, remained localized in this room. As soon as a case was reported vigorous fumigation was begun, work then resumed and still diphtheria developed. On September 27, two children were absent on account of diphtheria; three days later, two others did not come to school, while on October 3, a fifth was attacked. With the cooperation of the City Health Department it was decided to take cultures from the entire room. Four carriers were found, excluded from school, much to the disgust of the parents, and no other cases of diphtheria developed. As mentioned above, a child in one of the other rooms became ill with diphtheria. This, however, was the last case to occur in this building.

With this experience in mind, a case of diphtheria having appeared in both the morning and afternoon kindergarten classes at Orchard school, routine throat cultures were again taken. Three carriers were discovered, one attending the morning session, while the other two were enrolled in the afternoon class. These children were excluded, and no further cases developed.

Here is illustrated the folly of fumigating school rooms while diphtheria bacilli are harbored by the well. Taking cultures from even the youngest pupils was not difficult, and only in this way are we able to discover carriers. None of these children were ill at the time nor did they later become sick. Throat inspection in each instance showed a normal condition. The importance of routine cultures can not be overestimated. The active, acutely ill case is not the one of greatest danger. Such a

person is in bed and measures minimizing his danger to the well are taken. Quarantine is established and antiseptics are freely used. The healthy carrier is the real menace, and he is a very potent factor in the spread of diphtheria.

It may be of value to mention some statements in the later journals bearing on diphtheria carriers. Sobernheim<sup>1</sup>, in writing on bacillus carriers, gives tables showing that from 1832 persons examined for diphtheria bacilli in 1910-11, Klebs-Loeffler organisms were found in 244 healthy persons, that is, 13 per cent were carriers. Drigalski<sup>2</sup> reports that 25 per cent of 986 healthy persons in the environment of diphtheria cases gave cultures containing the bacilli, but that the germs seem to die off quickly in a healthy throat, as in 63 per cent of these carriers no organisms were found at the end of one week. B. L. Arms and E. Marion Wade<sup>3</sup>, as a fourth conclusion in an article on the virulence of diphtheria bacilli, say: "In diphtheria outbreaks a large percentage of the carriers harbor virulent organisms, although such carriers may develop no symptoms whatsoever." Hill<sup>4</sup> regards the carriers and atypical cases as being the most important factors in spreading diphtheria; and this has now become the accepted view. As to controlling an epidemic, one may well remember how an epidemic in Minneapolis was found to start with a healthy carrier employed in a well regulated dairy. Milk from this dairy having been found responsible for many of the cases, routine throat cultures of all employees was made and thus the carrier discovered. Prompt measures checked the epidemic. In commenting on this the *Journal of the American Medical Association* says, "It also illustrates the correct scientific method of getting at the origin of infections and handling them promptly."

In conclusion, let us remember that persons in the environment of diphtheria often harbor the organisms without they themselves contracting the disease; that these persons are a great menace to the community and should be handled accordingly. Whenever diphtheria appears in a school-room, routine cultures

<sup>1</sup>G. Sobernheim: Bacillenträger. *Berlin. klin. Wochenschr.*, 1912.

<sup>2</sup>Drigalski: Zur Epidemiologie und Bekämpfung der Diphtheria. *Ibid.*, 1912.

<sup>3</sup>B. L. Arms and E. Marion Wade: Tests of the Virulence of Diphtheria Bacilli. *Jour. Am. Med. Assn.*, 1911.

<sup>4</sup>Hill: "Carriers" in relation to the Spread of Diphtheria. *Med. Record, New York*, 1911.

should be taken. Thus can we control the dissemination, for what greater folly is there than to dismiss a roomful of children, fumigate, and then permit these same children, some of whom at least are carriers, to again mingle together. Better had there been less activity in fumigating and more in energy displayed in scientific methods, that is, the detection of carriers by throat cultures.

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**The Cotter's Saturday Night: New Version.**—The labor of the week is o'er, the stress and toil titanic, and to his humble cottage door returns the tired mechanic. He hangs his weather-beaten tile and coat upon a rafter; the housewife greets him with a smile, the bairns with joyous laughter. The supper is a merry meal, and when they've had their vittles, the mother plies her spinning wheel, while father smokes and whittles. But now the kids, a joyous crowd, must cease to romp and caper, for father starts to read aloud the helpful daily paper:

A cancer on the neck or knees once meant complete disaster; but Dr. Chowder guarantees to cure it with a plaster. He doesn't use an ax or spade, or blast it out with powder; don't let your coming be delayed—rely on Dr. Chowder!

Outdoors there is a rising gale, a fitful rain is falling; they hear the east wind sadly wail like lonely phantoms calling. But all is peace and joy within, and eyes with gladness glisten, and father, with a happy grin, reads on, and bids them listen:

If you have pimples on your nose or bunions on your shoulder, if you have ringbones on your toes—ere you're a minute older call up the druggist on the phone and have him send a basket of Faker's pills, for they alone will save you from a casket.

The clock ticks on the cottage wall, and marks the minutes' speeding; the firelight dances in the hall, on dad, where he sits reading. Oh, quiet, homely scene of bliss, the nation's pride and glory! And in a million homes like this, dad reads the precious story:

Oh, countless are the grievous ills, afflicting human critters, but we have always Bunkum's Pills, and Skookum's Hogwash Bitters. Have you the symptoms of the gout along your muscles playing? And are your whiskers falling out, and are your teeth decaying? Have you no appetite for greens, and do you balk at fritters? We'll tell you, reader, what it means—you need some Hogwash Bitters!

The children nod their drowsy heads, their toys around them lying. "I'll take them to their little beds," says mother, softly sighing. "It's time they were away from here—the evening is advancing; but ere they go, O husband dear, read one more tale entrancing." And father seeks that inside page where "Household Hints" are printed, where, for the good of youth and age, this "Household Hint" is hinted:

If you have maladies so rank they are too fierce to mention, just call on good old Dr. Crank; you'll find it his intention to cure you up where others fail, though t'others number twenty; but don't forget to bring the kale, and see that you have plenty.—Walt Mason in *Collier's*.

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**Seeing Is Believing.**—If people could *see* stagnant air as they can see stagnant water, with the slime and disease obvious to the naked eye, the fresh-air fad would be universal.—(*Collier's*).

## Optic Iridectomy

By L. K. BAKER, M. D., Cleveland

Mollie E., twenty-two years of age. The history in the case of this orphan is not very distinct. She reports that as a child she was weak and sickly and probably, as in many cases of congenital cataracts, she had rickets. Members of the Section will recall seeing the case two months ago. It was the consensus of opinion that an effort to improve vision, through iridectomies, would be admissible. It will be recalled that the right eye was needled ten years ago by another doctor and that the operation resulted in a traumatic cataract, in place of the original lamellar cataract, and a very extensive leukoma, covering the pupil and most of the cornea to the right of the pupil. In addition, there was posterior synechia except in the case of about one-sixth of the inner border of the iris. However, under a mydriatic, vision improved a little and it could be seen that the inner border of the lens still contained a small area which was comparatively clear and that a coloboma over this would reasonably give hope of improved vision. A second examination, with magnifying lenses, strong focal illumination, the ophthalmoscope, the ophthalmometer, with and without a mydriatic, such as is usually made to determine the location and form of the coloboma, was made. As a result a small oval coloboma, situated between the sphincter of the iris and its attachment, seemed to me to promise the best results. This, on account of the location and extent of the leukoma, covering the pupil, the extensive synechia, the opacities in the lens and the large amount and character of the astigmatism present. The fate of the other operation also suggested a conservative procedure. I endeavored, therefore, to perform the operation suggested by Pope, in 1871. Making a rather small wound in the corneoscleral border and withdrawing the keratone so as to allow the aqueous to drain slowly, he seized the iris, with small curved forceps, in the center of the location for the desired coloboma. Withdrawing the forceps with care only as much of the iris as the forceps contained was cut off with small curved scissors. To secure a round coloboma he held the scissors at right angles to the corneal wound. If they were held parallel to the lips of the wound an oval coloboma would result. In the case presented tonight I made the snip with the scissors as in the latter instance and secured the oval coloboma. The case was operated March twenty-fifth. Immediately after the operation the vision was improved. Within three days the wound was healed and at the end of the week the patient left the hospital.

The vision has increased from six to twenty two-hundredths without a glass. The astigmatism remains at five diopters but the axis, since the operation, has changed from thirty to five degrees. The vision for distance is now better in this eye than in the other. I have ordered a minus five cylinder, axis 5, as it gives the best vision.

Since refraction last July the left eye, which was increased from ten to twenty two-hundredths, by a minus three sphere, has remained unchanged. Now, however, with improved vision for the right eye, would it not be safe to needle the left eye, or at least perform iridectomy?

In connection with this interesting case perhaps a few remarks on the subject of iridectomy may be permissible. While the operation has been used for over twenty pathological ocular conditions its more frequent benefits have been in connection with cataract operations, glaucoma and optical improvement.

Probably the first recorded iridectomies were those of

Daviel. As an independent operation, however, it was first performed by Reichenbach.

In 1808, C. J. Beer introduced the modern method of penetrating the eye at the corneóscleral junction. He it was who first performed optical iridectomies and in other ways greatly enlarged the usefulness of the operation. Other results of his genius are better instruments and an effective technic. His disciples improved instruments and some of the details of the procedure. A. von Graefe interpreted the value of iridectomy as a curative agent. In recurrent iritis, iridocyclitis and glaucoma his results were most happy.

Passing over preparatory and therapeutic to optical iridectomy we find it used whenever, by the excision of some of the iris, it is possible to restore or greatly improve the vision. Hence, when there are corneal opacities, as partial leukomas, or opacities of the lens, as in zonular, pyramidal or perhaps traumatic cataract, or similar interference with vision, the operation is to be considered.

As a rule, a better result is obtained if the coloboma, resulting from the operation, is small. Generally it should not extend to the attachment of the iris. In every case great care should be taken as to its location, examining as already suggested. In some cases the use of a stenopeic slit will assist although it did not help in the case reported. Often, however, as in the case presented, the very limited area of clear cornea or lens, or both, restrict the operation to a very small locality.

Wherever the artificial pupil may be it has one serious defect. It does not vary in size with varying intensities of illumination. Adams, Himley and Critchett proposed, by displacing the natural pupil toward the location desired for the coloboma, to retain a pupil which would contract or dilate with differing intensities of light.

The immediate optical effects of the operation were good but it was soon found that the dangers of iridocyclitis, glaucoma and sympathetic ophthalmitis rendered these operations inadvisable. Pope's operation, already described, was offered as a substitute. When, however, the opacity is central, obscuring the undilated pupil only, the coloboma usually extends to and includes the inner border of the iris. While it is often placed inward and downward it can be effectively located in almost any position which the situation and extent of the opacities may indicate.

## The Bronchoscope in Asthma

By S. H. LARGE, M. D., Cleveland

It is difficult to arrive at a definite conclusion as to the cause and treatment of asthma. Permit me to cite three of the most reasonable theories as to the causation. Chemouski has shown by roentgenoscopy in thirteen cases that swollen lymph glands have been the cause of asthma. Von der Verden says that asthma is based on a general neurosis.

Burgelmann says it is the result of irritation of the respiratory center, due to a morbid condition in some distant organ; he defines five kinds of asthma, according to their etiology: nasal asthma; intoxication asthma; pharyngolaryngeal asthma; bronchial asthma; neuresthenic asthma. This theory to my mind is the most rational.

Our aim in treating asthma must be the removal of any pathological conditions that may cause a reflex stimulus to the respiratory center. We as laryngologists and rhinologists have seen some wonderful results from removing pathological lesions from the nose and throat. I think I am safe in saying that most cures have been affected by this procedure. W. J. Abbott read before the Academy a very excellent paper on this subject, and I wish to say here that I acquiesce in everything he stated then. Bosworth seems to have had most excellent results from his work in operations on the nose and throat. He reports 48 cases of asthma, 28 cured, and 12 improved.

Nearly every drug in the U. S. Pharmacopeia has been tried for asthma. The following are a few: Inhalation of smoke by burning potassium nitrite, and some of the other antispasmodics. Inhalation of amyl nitrite and oxygen. The administration of nitroglycerine, chloral, arsenic, lobelia, grindelia robusta, belladonna, adrenalin chlorid, the different forms of opium, thyroid extracts and iodids. Personally I have found sodium iodate to be the most efficient drug. Williams uses caffenin iodid. He states that those who are unable to take the iodid on account of its causing iodism are given calcium chlorid before or after the caffenin iodid; they must not be given together, as calcium iodid is formed, and the calcium has no controlling

influence against the iodid. A solution of cocain, atropin and adrenalin chlorid applied to the mucous membrane of the nose as a rule diminishes the paroxysm. Alcohol injected in the nasal nerve has also given relief.

We still have some cases left that are suffering from this most distressing affection and the bronchoscope has been the means of curing some of them. Freudenthal treated thirteen cases of asthma endobronchially; eight were cured, three greatly improved, and two showed no improvement. In one case there was a stricture of the trachea, the whole lumen was swollen and he was unable to pass the bronchoscope at the first sitting; in another case he found an ulceration of the mucous membrane. Notowny, in three cases had two cures and one greatly improved. Galebsky, working in Simanvosky's clinic, reports two cases, one cured and one unimproved. Burglemann has demonstrated that there are sensitive areas in the bronchi. He has given them the name of asthogenous points.

I am very sorry to say that my experience has been very limited as I have had only one case that was cured by the means of the bronchoscope.

In this case the patient had had nearly every possible operation on the nose and throat, but without avail. Since the treatment by the bronchoscope, he has been entirely free from asthma. In the other cases that I have had there has always been a counterindication for the use of the bronchoscope, either an atheromatous condition of the vessels or some heart lesion. I do not wish to convey the impression that the bronchoscope should be passed in every case of asthma, but I do wish to state that if you have tried all other lines of treatment and failed, that there is still one left, and that is the use of the bronchoscope. In using the instrument the parts are cocainized, either with cotton probes or with a spray, and then the sensitive areas are touched up with a 5 to 25 per cent solution of silver nitrate or with tincture of iodin.

**Lorimer Resurgent.**—True to type runs the ex-Hon. William Lorimer. Having been thrust out of the United States Senate with sufficient ignominy to last a less pachydermatous individual for a lifetime, he now finds another field in which to disgrace himself. He has become the "angel" of a consumptive-cure quack, one Peter P. Duket, M. D. Until the Friedmann "cure" ran its disastrous course in the newspapers, Duket remained but a minor charlatan. In the enormous and generally misleading publicity given recently to serums, antibodies, and lymphs for the cure of tuberculosis, Duket perceived his chance and boldly advanced as a notable discovery his "antiseptic lymph," which he had for several years more quietly exploited as a product potent to cure 90 per cent of tuberculosis cases in the first stage, 75 per cent in the second stage, and 50 per cent in the third stage. By processes best known to himself, he enlisted two powerful aides: ex-Senator Lorimer on the financial side and the Bennett Medical College of Chicago, which had never previously been involved with any quack, on the "scientific" side. Immediately a wide exploitation began. Can it be possible that, through some mysterious influence, Lorimer still enjoys his "pull" in Washington? An attempt was made to have the United States Public Health and Marine Hospital Service undertake a serious investigation of this arrant quackery. In fact, a preliminary investigation was made, with the result that a report was rendered, recommending "that the service refuse any further investigation." Such investigation might properly have rested upon the actual record of Duket's dupes. *The Journal of the American Medical Association* traced down eighteen of the cases treated by Duket in the last three years, with the result of showing that nearly all of the eighteen are now dead. And this is the enterprise with which the ex-Hon. William Lorimer and the Bennett Medical College elect to associate themselves. One golden opportunity they have missed. Lorimer's support would be more influential if he had a degree to his name. What could be more appropriate than that the Bennett Medical College should honor William Lorimer with the degree of Q. D.—Doctor of Quackery?—(*Collier's*).

**Economizing Life.**—Polysyllabic Subjects were the invariable order a few years back in the medical discussions. How great a change has come over the professional spirit of the doctors is suggested by the favor with which two presentations, both monosyllabic as to subject, and neither medical in the technical sense, were received at the recent convention of the American Medical Association at Minneapolis. One was a paper on ice; the other a series of charts on milk; both the work of Dr. J. R. Williams of Rochester, N. Y. If any meaning is left to the overworked word "sensational," that term may surely be applied, in no malign sense, to Dr. Williams's statement, backed up by proof, that the average refrigerator is only 30 per cent efficient; that 70 per cent of the ice power is used up in overcoming heat which percolates in from without. Wasted ice in a hot spell means not only wasted food but often wasted lives from spoiled food. The vitally important point brought out by the milk charts had to do with the simple matter of wagon routes. Both graphically and by carefully collated figures, Dr. Williams showed that in Rochester, whose system is that of practically all American cities, there is a tremendous economic waste in milk delivery; that in one section of the city a large number of delivery wagons covered nearly forty miles to distribute a supply which could have been distributed by the concentrated effort of a single concern in three and a half miles of travel. At first sight this may seem to be a nonmedical matter. But the possible saving in labor would mean a decrease of 2 cents per quart in the price of milk. That is often the margin between good milk and bad milk. And the margin between good milk and bad milk is the margin between life and death to thousands of children in this country every summer. Evidently the doctor of the future, to whom the public must look for health protection, will be, besides many other things, a practical economist.—(*Collier's*.)



# The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and  
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

THE OFFICIAL ORGAN OF THE ACADEMY OF MEDICINE OF CLEVELAND

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2318 PROSPECT AVENUE

Entered March 7, 1902, as Second-Class Matter, Post-Office at Cleveland, Ohio, under  
Act of Congress of March 3, 1879.

Organized January 20, 1902

Capital Stock \$6,000

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Journal.

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## EDITORIAL

### The Pathology of Hypertension

Hypertension, as indicated by a blood-pressure higher than the normal average, has received much attention during recent years, especially at the hands of the clinicians. To the life insurance examiner the proper interpretation of a continuously high blood-pressure is of the greatest importance. For the internist, more especially for the family physician, the prognostic import of increased tension is a matter of concern. It has long been known that chronic renal and cardiovascular conditions may be associated with high blood-pressures. In a certain percentage of cases the hypertension is an accidental finding in the

routine examination where the blood-pressure apparatus is brought into play. Are such patients to be told of the condition in such a way as to cause alarm; are they good insurance risks? In another group of cases the patients complain only of the relatively unimportant symptoms due to increased pressure. Symptoms indicating more serious organic lesions may be wanting. Are organic lesions always present in such cases and is the increased pressure the very earliest manifestation of such lesions; what is the prognosis in such cases? Then finally there are the cases in which there is evident involvement of the kidneys or arteries, to which the increased pressure may be ascribed. In the latter group of cases the prognosis is that of the underlying chronic disease, and the high pressure is important only because of the disagreeable symptoms that it may produce or of the cerebral hemorrhage that it may portend. That there is an organic lesion, detectable by our present methods of investigation, in every case of hypertension, must appear doubtful. In those cases in which the lesions most often associated with high pressure are absent, consideration must be given to the possibility of changes, as yet unrecognizable, in the functioning of the ductless gland systems.

Whether there is a tendency to overestimate the importance of increased blood-pressure and just what the underlying structural changes in hypertension may be can be determined only by large series of hospital statistics, in which carefully kept ante-mortem records are correlated with autopsy findings. Roger I. Lee<sup>1</sup> has reported the results of such a study based upon the material in the Massachusetts General Hospital from January 1, 1907, to April 25, 1911. A systolic blood-pressure of 160 was taken as the normal maximum. Fifty-three cases with pressures higher than this came to autopsy. In 71 per cent of the cases kidney lesions of one kind or another were present. Sixty-nine per cent of the cases had arteriosclerosis, which was associated with kidney lesions in 52 per cent. In only one case, with a pressure of 210, was there arteriosclerosis unassociated with lesions of any other kind. In 15 per cent of the cases there were definite cerebral lesions, four cases showing no other blood-pressure raising factor besides the cerebral lesions. 24 per cent showed cardiac lesions, but in only three cases was the

1, Roger I. Lee: Pathological Findings in Hypertension. *Publications of the Mass. Gen. Hosp.: Med. and Surg. Papers*, 1913, LV, 164-173.

heart alone involved. In fifteen cases, or 28 per cent of the series, no kidney lesions were found; of these fifteen, seven had cerebral lesions, seven had cardiac involvement, and one was the case of uncomplicated arteriosclerosis. Seven cases showed neither arteriosclerosis nor nephritis; in none of these was a pressure higher than 200 recorded; of the seven cases in this group, four showed cerebral lesions. Fifty-three cases constitute too small a series for any hard and fast deductions. However, the proportion of cases showing renal involvement will probably be found to hold, as will also the very small proportion of cases in which, at autopsy, arteriosclerosis alone is found. Undoubtedly the latter condition is an important primary factor in the causation of hypertension, but by the time the case comes to autopsy some nephritis will usually be present or the aortic valves will be thickened.

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### Postmortem Examinations in the United States

The New York Academy of Medicine has recently issued a report<sup>1</sup> on postmortem examinations in the United States. One can readily agree with the opening statement of Horst Oertel, Director of the Russell Sage Institute of Pathology:

It is an interesting observation to the student of the history of medicine that the development of scientific medicine and therapy in any country and among all nations has been inaugurated by the systematic performance of post-mortem examinations which made possible the establishment of pathologic anatomy. Its neglect has invariably been attended by stagnation and scientific decay.

And one can further regret, with the committee, the unsatisfactory conditions which exist in this country. How unsatisfactory for the development of scientific medicine these conditions are is made apparent by the compilations embodied in the report. In seventeen larger hospitals of the United States, the percentage of deaths which came to autopsy varied from a minimum of 4.8 per cent in the Albany Hospital to 62.6 per cent in the Johns Hopkins Hospital. In between these extremes, the percentages for twelve of the hospitals run between 6 and 25 per cent. Two very important points brought out are the very low proportions of cases which come to autopsy in the largest American hospitals, where the number of deaths is of course the largest; and a noticeable decrease in the autopsy percentage during recent years.

1, Report on Post-Mortem Examinations in the United States. *Jour. Amer. Med. Assn.*, 1913, LX, 1784-1791.

The American statistics are to be compared with those of the Royal Victoria Hospital of Montreal, with a percentage of 67.8, and of the Montreal General Hospital, with 86.4 per cent; with those of the hospitals of Great Britain, where the percentages run from 58.9 to 84.4; and especially with those of German and Austrian hospitals, in which the figures run from 88 to 97 per cent. The very high percentages in Germany and Austria are due to the laws, which provide for an autopsy in every case unless the contrary is specifically requested.

The poor showing in the United States the committee assigns to the following reasons: (1) adverse public opinion and existing prejudices; (2) the existing law; (3) the undertakers and burial societies; (4) hospital rules, and (5) the claims of the departments of anatomy. The committee makes recommendations to overcome these, but it will be many years before we can hope for changes in either laws or public opinion which will better conditions generally. In the meantime there is no reason why much cannot be done by individual hospitals to bring about an immediate improvement, which would cause an approach to the relatively high figures which obtain at the Johns Hopkins Hospital. Decent and humane handling of patients and relatives upon the part of hospital authorities, tact and consideration upon the part of resident medical officers who come in contact with patients and relatives will do much. The intern, whose attitude toward those with whom he comes in contact is characterized by kindness and whose interest in medicine is sufficient to make him wish to learn the structural changes beneath the conditions which he has seen clinically, can do more toward obtaining permission for autopsies than can anyone else. Certainly we cannot hope to do our share in the advancement of either research or clinical medicine with so limited a study of postmortem material as prevails in this country.

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### Laws Relating to the Insane

The laws in the different states have a very definite influence upon any measures which may be undertaken for the betterment of the condition of the insane for, more than is the case with any other class of the sick, the kind of care and treatment which the insane receive depends upon the kind of laws which exist. Many of the present laws were enacted during a period in which the insane were closely linked with criminals in the popular

mind. This unfortunate association is reflected in much legislation and it continues, in some states, to cause many hardships for this group of sick persons.

In the different states the care of the insane differs so widely that we can find all kinds—from the crude, custodial methods of one hundred years ago to the modern hospital methods—in actual employment at the present time. Such differences are not the result of varying standards for the care of the sick. In all these states we find diphtheria treated by the use of antitoxin, tuberculosis treated by rest in the open air and dependence placed upon the best methods of nursing in the treatment of typhoid fever. The great differences in the kind of treatment afforded the insane depend chiefly upon the kind of laws which each state has enacted and is satisfied with.

In the period in which much of the present legislation regarding the insane was enacted, custody rather than treatment was the object in mind. Newer conceptions of the nature of the mental diseases have changed this attitude and new ideals in care and treatment have become widely accepted. These ideals have been only imperfectly reflected in legislation thus far, however, and for this reason there must be a concerted effort, on the part of all of those interested, to obtain better laws if standards for care of the insane are to be generally raised in the United States.

One of the objects for which the National Committee for Mental Hygiene was organized was “to help raise the standard of care for those threatened with mental disorder or actually ill.” In the furtherance of this important object the committee has issued, as the third of its series of publications, a summary of the laws relating to the insane<sup>1</sup>, which brings out very forcibly the present chaotic condition of such laws. “Insanity laws reflect with much fidelity the status of public care given to the insane.” Betterment in the care given the insane and uniformity in the laws relating to commitment, to which the committee is pledged, rendered necessary a compilation of existing laws as a basis for future work. It is to be hoped that the endeavors of the committee will lead to laws which will make the care of the mentally ill approach more nearly to the humane and civilized treatment which persons ill of other diseases receive.

1, *Summaries of Laws Relating to the Commitment and Care of the Insane in the United States*. Prepared by John Koren. Paper, 297 pages, \$1.00. The National Committee for Mental Hygiene, 50 Union Square, New York, 1912.

### Bacterial Vaccine Therapy

There is at present running in the *Journal of the American Medical Association* a most important series of articles under the general title, "Bacterial Vaccine Therapy: Its Indications and Limitations." A therapeutic procedure of great value in proper cases has fallen into some disrepute because it has not been found to be the cureall that many expected it to be; because of a lack of knowledge of the principles of immunity upon which the procedure is based; and because of the great American tendency to exploit every new therapeutic measure for the purpose of financial gain. It did not take long for the determination of the opsonic index in every case to give way to the use of autogenous vaccines without such preliminary work; and from autogenous vaccines to stock vaccines was an even shorter step. Stock vaccines in an infection due to one of the more common bacterial species are perhaps just as good as an autogenous vaccine, if a vaccine of any kind can have any efficacy at all in the particular case. How useless commercial stock vaccines may be when more uncommon bacteria are concerned is brought out in the installment of "Bacterial Vaccine Therapy" which appeared in the June 7 issue of the *Journal of the American Medical Association*:

Among the well-known bacterial species the question of identity of those composing a commercial vaccine need cause little concern. But with the rarer bacterial species serious mistakes in identification have been made. For instance, a commercial vaccine supposed to be of gonococcus proved to be derived from a small diphtheroid bacillus. The acne bacillus has also been incorrectly diagnosed. A vaccine marketed and advertised for pertussis was found to have as its source a culture of a bacterium growing readily on ordinary culture mediums; thereby differing widely from the bacillus of pertussis which grows so scantily. This organism failed to qualify in any of the special features characteristic of the whooping-cough bacillus of Bordet-Gengou. It is highly probable that critical analysis will disclose many shortcomings in commercial vaccines purporting to contain the more uncommon bacterial species.

To the examples mentioned we might add the culture of the grass bacillus sent to a laboratory by one concern as a culture of the particular strain of tubercle bacillus which was used by that firm in preparing tuberculin. If the physician is to expect any results from the injection of dead bacteria, he should know in what kind of cases such a procedure may reasonably be expected to lead to beneficial results and he ought to be able to have the assurance that the material he is injecting is what it purports to be.

## The Constructive Work of the Council on Pharmacy and Chemistry

Eight years and five months ago the American Medical Association founded the Council on Pharmacy and Chemistry. In the *Journal of the American Medical Association* (Vol. LXI, No. 1, July 5, 1913, pp. 5-7), Torald Sollman reviews the work of the Council and indicates the very great obstacles which the Council had to overcome. The unselfish and untiring devotion to a cause shown by the members of the Council ought to arouse the admiration of every thinking practitioner. Just how much is being done for him the latter probably fails to realize, because we are still too near the patent medicine era. Most of the early work of the Council necessarily had to be destructive. Confused by high-sounding, but often meaningless, names which were being constantly multiplied at an alarming rate; confounded by advertising literature which made each new proprietary remedy even more superlatively infallible than its predecessor was claimed to be; the medical profession was in a fair way toward becoming the unpaid agents of exploiting manufacturers, when the Council began its task of showing that new names, exorbitant prices, and fine words on white paper do not necessarily make specific remedies for all the various diseases which afflict mankind. The "Propaganda for Reform" department of the *Journal of the American Medical Association* and the reports of the chemical laboratory of the association have kept the physician informed of what has been done toward the elimination of humbugs, while *New and Nonofficial Remedies*, revised each year, has informed him of the newer substances which have obtained the Council's approval.

Gradually the work of the Council is becoming more constructive in character. Standards have been established and the better manufacturers are coming to realize that it is good business to meet the requirements of the Council. The average doctor needs to have his eyes opened still a little more widely. Much still remains to be thrown overboard, and the thinking physician can facilitate the process by familiarizing himself with what the Council is doing and by taking the broad, open path toward better practice that is being mapped out for him. The published work of the Council forms an invaluable guide. The "Propaganda for Reform" in the association's journal and the

reports of the association's chemical laboratory point out the swamps and bogs; *New and Nonofficial Remedies* and *Useful Remedies* indicate the safe ground; above we have referred to the series of special articles on vaccine therapy. If the Council on Pharmacy and Chemistry is upheld and encouraged in its work the practice of medicine will be much better, for both doctor and patient, ten years from now than it is today.

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### The Scope of the Pharmacopeia

Inasmuch as the decennial revisions of the United States Pharmacopeia are made by a committee elected by a convention of physicians and pharmacists, it would be but natural that each profession should look after that part of the work which particularly concerns it. Accordingly physicians would indicate the drugs to be described in the Pharmacopeia, while the pharmacists would provide tests for determining the purity of these drugs and directions for preparing suitable preparations therefrom. As a matter of fact, however, the pharmacists have, at least in recent years, been dominant in the revision committee. As a result of this pharmaceutical control the commercial tendencies of the pharmacist have led to the retention of many drugs in the Pharmacopeia, which our present knowledge has shown to be inert or worthless. While the medical profession would have discouraged the use of drugs proved worthless, conservative pharmacy has encouraged the continued use of such drugs by their retention in the Pharmacopeia.

That the revision of the Pharmacopeia which is now under way, will again contain the drugs selected by the pharmacists rather than those the use of which is believed by us to be desirable is shown by the introduction into the house of delegates of the American Medical Association of a resolution (*Jour. A. M. A., June 28, 1913, p. 2086*) asking that the association send its protest on this point to the revision committee. The resolution was offered by Prof. Torald Sollmann of Western Reserve University, who, being a member of the Pharmacopeial revision committee, is thoroughly familiar with the present scope of the book. The resolution reads:

Whereas, It is desirable that the articles officialized by the Pharmacopeia of the United States should reflect the progress of therapeutics; and

Whereas, Therefore the inclusion of articles in the Pharmacopeia



now in progress of revision should be determined by their therapeutic merit; and

Whereas, The decision of therapeutic questions should logically and in fairness be left mainly to the medical members of the Revision Committee; therefore, be it

Resolved, That the section request the House of Delegates of the American Medical Association to urge on the Committee of Revision of the Pharmacopeia of the United States that the selection of articles to be included be left to the Committee on Scope, in which the medical profession has a majority representation, rather than to the Executive Committee, which represents mainly the pharmaceutical profession, and which has overridden half the changes advocated by the Committee on Scope.

The revision of the Pharmacopeia is being carried out by a committee of fifteen of whom fully two-thirds are affiliated with some branch of pharmacy. For this reason the resolution probably will be of little avail. It should be taken to emphasize, however, that the admission of a drug to the United States Pharmacopeia is not—as it should be—a guarantee that such drug is of therapeutic merit.

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**Solar Advice.**—He possessed a picturesque word sense who invented the term "sunstroke." One sees the volt leap from the blue, the victim topple to earth with a dull and appropriate thud, and feels, in the very sound of the syllables, a Homeric fatalism. Lightning itself, one might suppose, is not a more blindly ruthless slayer than the day star. Yet quite the reverse is true. The sun is, indeed, a strict respecter of persons. Not from him need the wise and careful anticipate any lethal blow. He strikes down only the careless and misguided. Many and various are the rules set forth every year for the heated term, but they all simmer down to this: keep a cool control of your nerves, a firm grip on your habits, and a loose collar about your neck. "*Du calme, du calme,*" advises the queer little doctor who sent Joseph Conrad's hero off into the superheated "Heart of Darkness." "Avoid irritation more than exposure to the sun." For the city dweller who lives in close and somewhat irritant contact with his fellow men, this is particularly sound hot-weather counsel. Frazzled nerves are often the beginning of collapse. Keep away from alcohol. You can't put out flames by throwing coal at them, nor can you reduce bodily heat by pouring liquid fire into yourself. Dress comfortably, and let appearances go. You can be lovely next winter—if you insist. Summer is the logical time of green things. Eat them—salads, fruits, uncooked vegetables. Go light on meats and sweets. Drink plenty of water, but not too cold. Stinting oneself in this respect is a mild form of torture which the nerves resent. To be sure, water drinking induces perspiration, and perspiration is unromantic. But it is safe. The man whose pores are kept open is seldom a victim of heat prostration. If you find yourself to have stopped perspiring suddenly and without apparent reason, get your doctor at once. That is the danger signal. Above all, keep your digestion and your sleep sound and regular. One more bit of advice in the interests of comfort, and this lesson is over. For him whose heart, lungs, and circulation are normal, lying perfectly quiet in a tub of cold water until slightly chilled, and then drying off *slowly* and without towel friction, is a safe measure, the cooling effect of which will endure for hours even in the most severe heat. Finally, cut this out, paste it in your hat (the lightest procurable), fear no more the heat 'o the sun, don't worry, but go on your way secure against the slings and arrows of outrageous temperatures—(*Collier's*).

## Department of Therapeutics

Conducted by J. B. McGEE, M. D.

**Camphor:** In the April number, the *Therapeutic Gazette* comments editorially on the physiological and therapeutic effects of camphor. Many years ago the editor's attention was drawn to the indorsement, by Graves of Dublin, of the value of camphor as a remedy in collapse. Clinical experience in its use since that time has led him to regard it as of very great value under certain circumstances. While unable to give a rational and satisfactory explanation of its good effects, it is recognized that for the time at least it must be employed on a purely empiric basis. Cases of cardiac failure, shock, nervous collapse, and profound asthenia from various causes, such as typhoid fever and carcinoma, have frequently rallied remarkably under its use, and in a way which seemed to prove beyond doubt that camphor must be responsible for the improvement. His experience has taught him that it is a remedy which speedily loses its influence, and that with each successive dose, employed of course for the purposes discussed, it produces less effect. For this reason Doctor Hare has always taught that it is a remedy to be held in reserve and to be employed only when some condition which is urgent is to be met. The doses employed by some of the German clinicians are in his opinion quite large, he rarely giving more than 2 grains at a dose. As to the results of investigations of camphor by Heard and Brooks, in which the drug was given hypodermatically in oil, even up to 50 grains with no definite results, he states that the seeming failure, on the part of these investigators, to find any reason for the advantageous effects of camphor, does not, in his opinion, in any way invalidate its use for the conditions he has indicated. While it is interesting and valuable to have reports of this character, it must also not be forgotten that the body has many vital processes which as yet we are quite unable to study accurately. Finally, there can be no doubt whatever that many drugs act advantageously not by producing a stimulant or sedative influence upon the circulation, but by equalizing it. In olden times alcohol was thought to do good by acting as a stimulant. Now we know this is an error, but we still know it does good when properly used, and does this good aside from any energy which it may readily yield to the body. This benefit would seem to depend upon the equalizing of the circulation, so that areas deprived of blood obtain it, and areas unduly hyperemic are relieved. Probably this is one of the ways in which the nitrites do so much good, since by relieving spasm in certain areas they produce good effects without influencing the entire vascular system at a maximum. He concludes by stating that while we welcome such researches as that quoted, he reiterates that while scientific facts are always most desirable, when well recognized therapeutic measures cannot be explained by scientific research, there is no reason for condemning their use or casting them aside.

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**Cardiac Arrhythmias:** Thomas E. Satterthwaite, in the *Monthly Cyclopedia*, considers the treatment and differentiation of cardiac arrhythmias. It has now been generally accepted that arrhythmias may be satisfactorily classified with reference to the five physiological attributes of heart muscle, demonstrated by Gaskell in 1882. Four distinct varieties of arrhythmias, corresponding to the first four faculties or attributes, can be demonstrated by graphic tracings. The first form, to which he has given the name of pneumogastric arrhythmia because of its close relation to pneumogastric influence, is a variation from the standard cycle within physiological bounds. In its treatment it is quite evident that, as a rule, this condition does not justify us in sounding notes of alarm. In other words, it is physiological, as, for example, in the so-called youthful type of irregularity. Consequently no treatment is required. In (2) extrasystole, there may be a neurotic

basis or the condition may result from the pressure of gas produced by gastrointestinal fermentation. Again, it may be a reflex from the gastrointestinal tract, as in indicanuria. In the one case, sedatives, as camphor or the bromides, are useful; in the latter, remedies that regulate gastric or intestinal digestion, such as pepsin, pancreatin, bismuth, sodium carbonate, etc. If the extrasystoles are due to the excessive use of coffee, tea, or tobacco, the therapeutic indications are evident. In (3) auricular fibrillation, there is no remedy so satisfactory as digitalis or its congeners, of which strophanthus is the next best. Only the most reliable active principles of these drugs should be used, because if given in suitable doses they are effective without causing any of the unpleasant effects usually associated with these drugs in other forms. The intelligent use of baths and resistance exercises is also very valuable. In (4) heart-block, if it be acute and caused by digitalis, the drug should of course be suspended at once. If syphilis exists antisyphilitic remedies should be used according to established rules and in sufficient quantity. Atropin, 1/60 grain, is a test as to whether the heart-block is due to a lesion of the pneumogastric. It will usually increase the rapidity of the ventricular contractions when these are below normal, but has no curative effect.

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**Pruritus Ani:** Jerome Wagner, in the *Medical Review of Reviews* for May, treats of pruritus ani, the three etiological factors of this condition being, according to Ball: 1, Those cases due to parasites, animal or mycotic. 2, Those resulting from dermatitis of the anal canal and the surrounding skin. 3, Those in which the disease is essentially in the nerves supplying the affected area with sensation. Wallis claims that the etiological factor of pruritus, when it is primary, lies in the presence of a small ulcer situated between the internal and external sphincter, usually in the posterior median line. As to treatment, probably every drug in the National Formulary has been recommended and used, alone or in combination, in the treatment of pruritus ani. The first thing to do is to cure any associated rectal or anal condition present. Threadworms are not uncommon, for which enemata of quassia, lime water and cold water have been used. Heller, however, claims that these alone are insufficient, as the normal habitat of the worm is in the cecum, and the female descends only to deposit her eggs. These in turn through scratching are transmitted to the mouth, and thus a vicious circle is established. Therefore the most scrupulous cleanliness is essential for cure. Foreign bodies, hemorrhoids, anal or rectal growths, or hypertrophied papillae should be removed, and fissures, fistulas and ulcers extirpated. Local skin conditions, as dermatitis, should be accorded appropriate treatment, and in fact any abnormal condition should be remedied before local treatment is attempted. Concerning the local applications, he mentions a few, any one of which may succeed where all others have failed. The long list includes warm water, black wash, carbolic acid with salicylic acid and glycerin, tincture of iodine, silver nitrate solutions in varying strengths, lead subacetate in milk, and ointments of all kinds, particularly those containing tar or combinations with calamine. Operative procedures are sometimes necessary and recently Murray has advanced the theory that the etiological factor is a specific streptococcus and advises a course of treatment by autogenous vaccines.

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**Neosalvarsan:** *The New York Medical Journal* for May 3 considers editorially the intravenous injection of neosalvarsan in concentrated solution. Recent experiences have shown the advisability in the intravenous injection of salvarsan of employing freshly distilled and sterilized water for the preparation of the solutions to be injected. Another necessary precaution has been that of using normal saline solution, in order to avoid destruction of the corpuscles by laking when the fluid is introduced. In view of the fact that the sodium chlorid used, and the lead, lime and other bodies that may be present in the distilled

water itself, have been considered responsible for some of the untoward phenomena closely following salvarsan or neosalvarsan injections, Revaut has adopted the plan of administering neosalvarsan in the smallest possible quantities of distilled water. In a recent communication on this subject Revaut states that he has been injecting as much as 0.9 gram of neosalvarsan dissolved in only 8. or 10 cubic centimeters of distilled water. With this procedure the neosalvarsan itself supplies the required isotonicity with the blood. Distilled water prepared several weeks before and kept in ampoules of the highest quality glass can be used directly without causing any systemic reaction. The solution is prepared after the constricting band has been applied to the patient's arm and the skin cleansed with alcohol. The drug is merely dropped into the water and the solution drawn up into the glass syringe, through a special glass tube containing a small wad of cotton for purposes of filtration. The needle is then adapted to the syringe, air driven out, and the injection at once given. All rubber tubing is thus eliminated and a more strict sepsis rendered possible. The whole procedure of preparation occupies only two minutes. The author has given 420 such injections without the least untoward result.

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**Diuretin:** In the *Archives for Internal Medicine* for May, Henry A. Christian and John P. O'Hare report their results in a study of the therapeutic value of a diuretic (theobromin sodium salicylate or diuretin) in acute experimental nephritis. They conclude that: Diuretin given to rabbits with severe fatal experimental nephritis shortens the duration of life of these animals. On the other hand, nine out of twelve rabbits which survived the experiment had received diuretin. This work supports the view that in a severe acute nephritis, a diuretic drug, such as diuretin, is contraindicated, inasmuch as in the experiments diuretin shortened the lives of the animals. On the other hand, of the survivors, a large proportion (three-fourths) had received diuretin. This rather gives support to the view that in less severe cases diuretin may be beneficial, and so justifies the cautious use of the drug in moderately severe cases of acute nephritis. In the survivors, it is not certain that acute severe renal lesions were produced; consequently deductions from these relatively few survivors are of less value than from the larger number dying during the experiments. Of course it is realized in making deductions such as these, that they may not be applicable directly to conditions in the human being, for due allowance must be made for the many differences between man and the lower animals. The experiments, however, certainly support the view that diuretin as a diuretic may be harmful in a case of acute nephritis.

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**Hypertension:** Henry Farnum Stoll, in the *Medical Record* for May 3, considers the significance and management of hypertension. He presents the drug treatment last, not because of its relative importance but to emphasize the fact that drugs are not the first thing to be resorted to. After the usual nondrug measures, as rest and regulation of diet and habits, have been instituted, the vasodilators may be tried and if the pressure can be lowered without occasioning any untoward symptoms they are of much value. Save in extreme cases, where immediate results are desired, it is a mistake to resort to them before regulating the diet and habits. No one vasodilator can be used in all cases, as results will sometimes be obtained with one but not with the other. Sodium nitrite and erythrol tetranitrite are probably the most used where prolonged effects are wanted. The lowering of blood-pressure from venesection is very marked, and persists for a much greater length of time than from any drug. Its prompt performance may be life-saving. Iodid of potassium has been extensively used in hypertension, but it is not altogether clear just how it acts, nor is there any unanimity of opinion as to its effects. It is generally conceded that it will lower

the pressure in lead poisoning and its value in syphilitic endarteritis is thoroughly established. It is quite possible that there is an underlying latent syphilis in a much larger percentage of patients with hypertension than we have hitherto supposed. Good results sometimes follow the prolonged use of small doses of potassium iodid for many months at a time. The newer preparations of the organic iodids are apparently inferior to the inorganic salts. While the thyroid preparations have some advocates, his experience with them, while limited, have not been satisfactory. Small doses of the bromids are indispensable in the very nervous. He concludes that in about 90 per cent of the persistent hypertension cases there is a pathological process in either kidney or arteries, and here an attempt to reduce the pressure to the so-called "normal" is a hazardous procedure.

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**The Pituitary Body:** In the *Critic and Guide* for May, Solomon Solis Cohen writes concerning the extract of the posterior lobe of the pituitary body as an adjunct to the quinin treatment of pneumonia. He has previously called attention to the value of massive doses of the double salt known as quinin and urea hydrochlorid, given intramuscularly in the treatment of acute lobar and lobular pneumonia, and to the auxiliary usefulness of hypodermic injections of cocain as a blood-pressure raising agent in connection therewith, his report being based on nearly ten years' work. In quite a number of severe cases, however, in which cocain failed to produce prompt and sufficient effect, or in which the necessity to repeat the dose arose with seemingly too great frequency, he has made use of a preparation of the posterior lobe of the pituitary, with good results and without untoward accompaniments. In his previous communication he mentioned pituitary and adrenal preparations, as well as camphor, as among the agents useful for this purpose, though stress was laid most particularly on cocain. He has found pituitary extracts—Fenger's and others—useful likewise in various conditions of loss of vasomotor tone; especially in those symptom complexes associated with insufficient calcium content of the blood and urine. He emphasizes the great value of posterior pituitary preparations in pneumonia. An ampoule of the sterilized "pituitary liquid" supplied to him by Doctor Fenger contains 1 ccm of the preparation, representing 0.2 gm (3 grains) of the fresh posterior lobe of the pituitary body of the ox. This quantity was injected, as a rule, every fourth hour, but sometimes more frequently and sometimes less frequently, as indicated. A common practice was to alternate injections of the pituitary liquid with injections of 2 ccm of a 10 to 20 per cent solution of camphor in sterilized olive oil. In some cases camphor, cocain and pituitary liquid were given in rotation. The latter course is the one which he is most inclined to favor, other things being equal. It is usually wise not to exhaust the response of the system to any one agent. By the skillful association of several synergistic agents we can obtain a continuous effect as desired, without resorting to an excessive use of any one of them.

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**Veronal:** William House, in the *Therapeutic Gazette* for May, summarizes the therapeutics of veronal. Veronal is being more and more extensively used and abused. It is prescribed by physicians in an increasing variety of cases. The druggist dispenses it freely and the layman has learned to ask for it. Harm mingles with the good it does. His original paper on veronal (1907) was based upon the administration of more than 3000 doses given to about 200 patients, at least half of them insane, and the remainder victims of lesser disorders of the nervous system, such as neurasthenia, alcoholism, and drug habits, treated over a period of three and a half years in a private sanatorium. During the last six years he has prescribed veronal more sparingly. Most of his cases have been in private neurologic practice and have included practically every complaint accompanied by insomnia or nervous

restlessness. As to the toxic symptoms, a number of deaths have been reported from large doses, usually above 100 grains. His own experience indicates that a single dose of 30 grains may cause danger symptoms, although a frail melancholic girl received from 20 to 35 grains daily, in divided dosage, for two months and seemed to thrive on it. As to the length of time it may be safely given, he knows of many neurasthenics who have taken the drug for months; and a physician took the drug in 5 to 10 grain doses almost every night for more than a year without ill effects, and at the end of that time, having recovered from his neurasthenic state, was able to discontinue it without effort. The symptoms which indicate that it should be discontinued are vertigo, weakness and staggering, puffy eyelids, and above all else, dark concentrated urine. In poisoning, if it be suspected that the stomach contains any unabsorbed veronal, no hot drinks should be given, as these will hasten absorption. Instead the stomach tube may be used. External heat should be applied. Caffein may be used, but there appears to be no indication for strychnin or digitalis, as the heart is apparently not affected. Later alkiline diuretics may be employed. Veronal will give best results when prescribed in powder form. He is vigorously opposed to its use in tablet form, as he never obtained results from them, and believes they favor selfmedication. He also objects to fluid preparations of the drug. For the relief of simple insomnia, 5 to 15 grains of veronal may be given, divided if preferred, part being given at 5 or 6 o'clock, and the balance on retiring. For sedative purposes, 5 grains may be given every four to six hours during the day, and a double dose at bedtime. Probably the maximum quantity in twenty-four hours ought not to exceed 30 grains. Hot malted milk is the best vehicle. It disguises the taste, acts as a solvent, is itself sedative to many persons, serves to conceal the quantity administered, making reduction in dosage possible without the patient's knowledge, or conversely, for unwilling patients, making concealment possible. As a substitute hot water or weak tea serves well. To those who suffer from vertigo and slight headache after veronal, von Noorden recommends a reduced dose, and phenacetin in 3 grain doses added. He thinks this a most effective and desirable combination.

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**Functional Heart-Block.**—The faulty correlation of the beat of the auricle and ventricle, spoken of as heart-block, is commonly assumed to be due to an organic defect or injury in some portion of the cardiac tissue in which the beat is initiated and the impulse conducted from part to part. Lately instances of possible functional heart-block, that is, the phenomena of the Stokes-Adams syndrome without actual anatomic defects in the auriculoventricular system to account for the complete dissociation between the parts of the heart, have been reported. In one observed case, for example, the patient recovered and the relations between auricles and ventricles became normal so that the proof of the real difficulty could not be ascertained. Oppenheimer and Williams have now described a somewhat similar case in which the heart-block symptoms were followed and electrocardiograms obtained at intervals until the death of the patient. During many months of the period of observation the patient had a pronounced Cheyne-Stokes respiration. The details of the ventricular beat as they exhibit themselves on the modern electrocardiographic records show frequent changes. The important finding, however, was the lack of apparent organic lesions when the heart was examined after death. Histologic examination failed to reveal any anatomic defect to account for the block in the auriculonodal junction, the node of Tawara, or the main stem and its branches. The nodal artery was sclerotic. It is unusual to miss structural defects when they are supposed to form the basis for abnormal physiologic behavior. Their absence justifies the inquiry as to whether or not one is dealing with purely functional disturbances in explanation of such unusual instances of complete heart-block—(J. A. M. A.)

## New and Nonofficial Remedies

Since publication of *New and Nonofficial Remedies*, 1913, and in addition to those previously reported, the following articles have been accepted by the Council of Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

**Cholera Agglutinating Serum.**—The dried blood-serum of horses which have been injected with killed cultures of the cholera vibrio. It is intended for the diagnosis of cholera by the agglutination of suspected cholera vibrios. H. K. Mulford Co., Philadelphia (*Jour. A. M. A.*, May 10, 1913, p. 1461).

**Diphtheria Bacteria.**—This is a *Bacillus Diphtheriae* Vaccine claimed to be useful for the treatment of diphtheria carriers and for immunization against diphtheria. H. K. Mulford Co., Philadelphia (*Jour. A. M. A.*, May 10, 1913, p. 1461).

**Coli Vaccine (Polyvalent).**—For description of *Bacillus Coli* Vaccine see *N. N. R.* 1913, p. 221. Schieffelin and Co., New York (*Jour. A. M. A.*, May 10, 1913, p. 1461).

**Gonococcus Vaccine (Polyvalent).**—For description of Gonococcus Vaccine see *N. N. R.* 1913, p. 223. Schieffelin and Co., New York (*Jour. A. M. A.*, May 10, 1913, p. 1461.)

**Pneumococcus Vaccine (Polyvalent).**—For description of Pneumococcus Vaccine see *N. N. R.* 1913, p. 224. Schieffelin and Co., New York (*Jour. A. M. A.*, May 10, 1913, p. 1461.)

**Staphylococcus Vaccine (Polyvalent).**—Schieffelin and Co., New York (*Jour. A. M. A.*, May 10, 1913, p. 1461).

***Staphylococcus Albus* Vaccine (Polyvalent).**—Schieffelin and Co., New York (*Jour. A. M. A.*, May 10, 1913, p. 1461).

***Staphylococcus Aureus* Vaccine (Polyvalent).**—For description of *Staphylococcus* Vaccine see *N. N. R.* 1913, p. 225. Schieffelin and Co., New York (*Jour. A. M. A.*, May 10, 1913, p. 1461).

**Staphylococcic Cultures.**—These cultures consist of colonies of active living *Staphylococcus aureus*. They are intended for the elimination of diphtheria bacilli from the throats of diphtheria carriers. H. K. Mulford Co., Philadelphia (*Jour. A. M. A.*, May 10, 1913, p. 1461).

**Luminal.**—Luminal is phenyl-ethyl-barbituric acid. It is closely related to veronal, which is diethylbarbituric acid. It is a white, slightly bitter powder, almost insoluble in cold water. It is claimed to be a useful hypnotic in nervous insomnia and conditions of excitement of the nervous system. Merck and Co., New York (*Jour. A. M. A.*, May 17, 1913, p. 1541).

**Luminal-Sodium.**—Luminal-sodium is the sodium salt of luminal. It is hygroscopic and readily soluble in water. It is used for hypodermic injection in 20 per cent solutions. Merck and Co., New York (*Jour. A. M. A.*, May 17, 1913, p. 1541).

The following have also been accepted:

Magnesium Perhydrol (Merck & Co.).

Magnesium Perhydrol 25% (Merck & Co.).

Magnesium Perhydrol 25% Tablets (Merck & Co.).

Luminal (Farbenfabriken of Elberfeld Co.).

Luminal Tablets 1½ grs. (Farbenfabriken of Elberfeld Co.).

Luminal Tablets 5 grs. (Farbenfabriken of Elberfeld Co.).

Luminal Sodium (Farbenfabriken of Elberfeld Co.).

Solution of Amylene-Chloral (50%) (Kalle, Kalle & Co.)

## Academy of Medicine of Cleveland

## ACADEMY MEETING

The one hundred and first regular meeting of the Academy of Medicine was held at the Cleveland Medical Library, Friday, May 16, 1913, the President, H. L. Sanford, in the chair.

The amendments to the constitution proposed at the previous meeting of the Academy were adopted.

The regular program was as follows:

1, Diaphragmatic Hernia, By R. H. Birge.

Less than 1000 cases of diaphragmatic hernia are reported in the literature; of these only some 66 were operated, with a mortality rate of about 75 per cent. Of the cases operated, only 17 were diagnosed before operation or autopsy. Those cases which are operated are usually operated for intestinal obstruction. Failure to make the diagnosis is due usually to the fact that the possibility of diaphragmatic hernia is not borne in mind. In any case of intestinal obstruction the history in regard to injury, either recently or years previously, should be inquired into. After subsidence of the acute symptoms, in traumatic hernia, recurring chronic symptoms with abdominal pain and difficulty in breathing may occur. Diaphragmatic hernia must be differentiated from congenital high position of the diaphragm, which is not a surgical condition. In the former condition the physical examination may be helpful because of the adventitious chest sounds, due to the presence of the stomach and intestine in the thorax. The lead bougie with subsequent X-ray has not yielded expected results. The colon is usually included in the hernia. X-ray examination after administration of bismuth subnitrate may be helpful. Fluoroscopic examination may show abnormalities in the diaphragm shadow line. Differentiation from pneumothorax is sometimes difficult; the tympany in pneumothorax usually extends to the upper limit of the lung. In pyo- or hydro-pneumothorax puncture gives conclusive results. Three unrecorded cases were reported.

The first case was that of a male, aged 28 years. Following an injury to the abdomen he complained of severe pain in the abdomen but not in the chest. Upon admission to the hospital the patient was in profound shock, the skin showed no evidences of injury, the abdomen was retracted and tender. His condition became worse and a diagnosis of intradominal hemorrhage with possible rupture of a viscus was made. There was no thought of diaphragmatic hernia. At operation the peritoneal cavity was found filled with blood, which came from a rent in the mesentery. Stoppage of this did not cause cessation of the hemorrhage, which was found to be coming also from a rent in the diaphragm. The stomach and portions of the intestine had been forced through the rent into the thoracic cavity. The diaphragmatic tear was sutured. The patient was in poor condition for days after the operation, but on the tenth day began to improve and left the hospital shortly thereafter apparently well. X-ray examination since recovery shows nothing abnormal.

In the second case, a young man, seen in 1907, pain was complained of after a wrestling bout. Some three weeks after this the patient was struck in the abdomen while attempting to board a streetcar. This injury was followed by vomiting and symptoms of intestinal obstruction. The patient was comfortable on the second, third and fourth days after the injury, but on the fifth to seventh days attacks of vomiting again occurred. An attempt to pass the stomach tube on the tenth day brought on sudden collapse. A definite diagnosis was not made. At operation a rupture of the diaphragm was found. Death occurred eight hours after operation.

The third case was from the medical records of the Lakeside Hospital. The patient, a woman, was sent into the hospital with the complaint that she could not take solid food without vomiting. Three months before admission she had been kicked in the abdomen by a fond and loving husband. Two weeks later she began to have attacks of vomiting which came



on two or three hours after eating. Examination was practically negative and the patient was considered to be a victim of neurasthenia. Over-feeding in the hospital did not lead to vomiting and led to improvement in the general condition. The patient was discharged but returned in two months with the original complaint of vomiting. Nothing definite could be made out on examination. Death occurred on the second day after this admission. Autopsy revealed a diaphragmatic hernia with the stomach and part of the colon in the thoracic cavity.

C. F. Hoover, in opening the discussion, said that the last case described was the third case of diaphragmatic hernia which he had seen, his second case being the second case reported by Doctor Birge. The first case which he had seen was a man who had received a stab wound, which had apparently gone through the diaphragm. The patient recovered and some months later attacks of pain were followed by vomiting. Hernia was not suspected but was found at autopsy. In the third case hernia of the diaphragm was thought of but was quite conclusively excluded. The history of injury in this case was not obtained until the time of autopsy, but even this would not have helped in the diagnosis of this particular case. The diagnosis of diaphragmatic hernia is difficult because the foreign structures which enter the thorax do not interfere with the excursions of the diaphragm or of the lung. There may thus be little change in normal auscultation and percussion sounds.

C. Lee Graber reported a case which he had seen thirteen years ago, a miner injured by the fall of slate, resulting in costal and vertebral fractures. Death occurred in three days. The left side of the thorax was tympanitic to the clavicle; distinct breath sounds could be heard only above the clavicle. Death occurred on the third day. At autopsy only the stomach was found in the thorax.

A. W. Lueke had seen an autopsy on a case of diaphragmatic hernia, death being due to natural causes twenty years after the injury which had caused the hernia.

R. H. Birge, in closing, said that in traumatic hernia the physical signs are most helpful, the X-ray examination corroborative. In congenital hernia the X-ray must constitute the chief reliance. The X-ray is perhaps a greater diagnostic help than statistics would lead one to believe, since practically all the cases diagnosed have been diagnosed since the perfection of X-ray technic.

2, The Operative Treatment of Fractures, by Willard Bartlett, St. Louis.

The speaker gave a description of the nail extension methods of Codavilla and Steinmann, and of the bone plating method of Arbuthnot Lane. Of three cases treated by the nail extension method by the speaker, good results were obtained in one, in the second the method was not continued long enough, and in the third the treatment was not begun soon enough after the injury. A disadvantage of the method is the danger of infection with delay in healing. The Lane method had been used by the speaker in 77 fractures. 39 of these could be traced for periods ranging from 2 to 29 months after operation. Of these 23 were simple, and 16 compound fractures, and of the latter 4 were suppurating at the time of operation. As the result of his experience with the Lane method the speaker agreed with the general conclusions of the section on surgery of the British Medical Association printed in the *British Medical Journal* of November 30, 1912. In addition the speaker felt that an open operation is advisable when a leg case must be gotten out of bed early; in old cases of nonunion or extreme malunion; in fresh, widely open fractures if shock be past; in chronically infected cases in which the bones lie bare. It must be realized that no operative procedure is entirely without risk, and good reasons for assuming this risk must exist before the open method is resorted to.

G. W. Crile, in opening the discussion, said that he had had some very good results and also some unsatisfactory ones with the Lane method. The latter is a new surgical resource, which gives good results when

properly used in the proper cases, but very bad results when employed by those not experienced in the use of the plates.

F. E. Bunts believed that the tide has deservedly turned against the Lane plates, largely because they have been used by so many not competent to use them. Delayed union seemed to be more frequent in plated fractures than in unplated ones.

J. E. Tuckerman asked what proportion of fracture cases are considered to require plating and whether it was the speaker's custom to plate in those cases where foreign tissues interfere with close apposition of the fragments, so that cutting down upon the fracture is necessary.

C. E. Briggs said that the treatment of fractures should never be undertaken without X-ray examination. What should be striven for is a reasonable anatomical result, and in general this should be attempted without opening. If then the X-ray shows that the desirable result cannot be obtained or held, then some mechanical apparatus would seem to be indicated. Plating ought to be very valuable in fractures of the radius and ulna.

F. C. Herrick believed that only relatively few fractures cannot be made to hold a proper position without plating. The latter method is dangerous. If good anatomical results can be obtained by the older, non-open method, it should be preferred.

Willard Bartlett, in closing, said that he had been surprised by the large percentage of fractures in which interposition of foreign tissues between the fragments occurs, and he felt that interposition as a cause of nonunion has been exaggerated. The more he has used the open method and has learned of fractures through it, the less has he used it. And since seeing Lane use it he is still less inclined toward it.

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#### OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The sixty-sixth regular meeting of this Section was held at the Cleveland Medical Library, Friday, May 23, 1913, the Chairman, C. C. Stuart, in the chair.

Edward Lauder presented a foreign body which had been in the eye since September of 1909. The patient had been first seen in October of that year. The X-ray showed the foreign body, but the magnet had no results, although it was felt certain that the body was a piece of steel. Vision was 20/100. The eye soon quieted down and the patient was advised to let it go. In August of the past year the lens became opaque and an excision of the lens was done, with improvement in vision. During the present month the patient came in again with pain in the eye and ciliary congestion. Following the application of the magnet the foreign body came into the lower portion of the anterior chamber, from which it was removed.

R. B. Metz called attention to the bright condition of the piece of steel and asked whether there had been any siderosis.

Edward Lauder replied that there had been no siderosis. The X-ray of four years ago was not a localizing one, so that the position of the body at that time could not be determined.

Edward Lauder reported a fatal termination following an operation for congenital cataract. The patient, a baby three weeks old when seen some weeks ago, was found to have a bilateral congenital cataract. A week ago a double needling operation was done, apparently with excellent immediate results. The child was under the anesthetic only twenty minutes and the operation itself was simple. Three and one-half hours after the operation the temperature was said to have been 109.1°. The evening of the same day the temperature was 101°. The child died eleven hours after the operation, the cause not determined. Cocain sometimes causes marked rise in temperature, but the child had had only two instillations of cocain and had had two physiological antidotes to cocain in ether and atropin. No cause for the untoward termination could be suggested. In its fatal termination so soon after a simple operation the case was some-

what like one recently reported in the *Laryngoscope*. Following a simple tonsillectomy in an adult, the temperature began to go up within two hours and reached a maximum of  $107^{\circ}$ . Death occurred the same day; there was no hemorrhage and nothing to explain the death.

The regular program was as follows:

1, Dextrophia Demonstrated by Duction and Version Readings, by Edward Lauder.

The speaker had not been able to verify the statement that prisms help to locate the weak muscle. The tropometer, however, does help. In using the tropometer it had been found in some cases that the outer muscle of the right eye seemed to have somewhat more power than normal, and the speaker had come to the conclusion that dextrophia is a condition of considerable importance. In a case seen first in August, 1907, the glasses prescribed after refraction had not relieved the patient of attacks of headache and dizziness. There was some exophoria. The tropometer examination in September of last year gave the following result: 50:45:50:45. And in April of the present year the reading was 52:45:50:45. After this examination the patient was given a prescription of  $+1.50=2^{\circ}$  prism, base in, for the right eye, and  $+1.25$  for the other eye. The very satisfactory results obtained would indicate that the trouble may be entirely in one eye and that it is not necessary to divide the prisms. A second patient had, when first seen, exophoria of  $3^{\circ}$ , which has varied from that to  $5^{\circ}$ . The patient had never been comfortable with the glasses prescribed. In March the tropometer examination showed 50:50:55:48. The patient was given a  $2^{\circ}$  prism, base in, for the right eye. Its use was followed by greater comfort than she had had for years. A third case, a girl of 18 years, was first seen in January, complaining of pain in the right eye and right temple. She was found to have compound myopic astigmatism with exophoria of  $15^{\circ}$ . The tropometer gave the following result: 60:50:65:45, indicating marked muscle weakness. At the present time the patient is wearing her full correction, with a  $3^{\circ}$  prism, base in, on the right, and a  $3^{\circ}$  prism, base out, for the left eye. Her condition is improved, but she is not yet completely comfortable. The speaker felt that each case of dextrophia is an individual problem in mathematics and must be studied as such.

R. B. Metz, in discussion, said that he had also found that prism duction tests do not give a real idea of the weakness or strength of individual muscles. The results obtained for one eye are the same as those for both eyes. Prism tests do not give real information as to the action of the muscles.

Leo Wolfenstein asked in what way the use of prisms with base in for one eye and base out for the other eye would be any better than turning the head, whether it would relieve the headaches by overcoming the tendency to turn the head.

Edward Lauder replied that prisms do prevent turning the head and for this reason add to the comfort of the patient. The patient prefers to carry the head in the primary position; when prisms help to maintain this position headaches are improved.

W. E. Bruner agreed that placing the base of the prism over the weak muscle is advantageous and that the tropometer is helpful in detecting the weakness of individual muscles. He asked whether dextrophia is more frequently encountered in right handed persons.

C. C. Stuart asked whether dextrophia is more common than sinistrophia.

Edward Lauder replied that sinistrophia is much more rare than dextrophia. As to the occurrence of dextrophia in left handed persons he could not say.

L. K. Baker believed that much of the eye muscle trouble had its beginning in school. In the early grades the children work at too close range to their books, and it seems impossible for them to get away from this habit in later years.

2, Further Report upon a Case of Hereditary Optic Atrophy, by W. E. Bruner.

The case was one which had been previously reported and shown before the Section. Further mention was made at this time because of the decided improvement which had occurred during the past year. About a year ago the patient saw Harvey Cushing, who considered a decompression operation advisable. Immediately after the operation vision was much worse, and one month afterward the patient was not able to get about. Some months ago vision began to improve, and now peripheral vision is almost as good as in the beginning, although the patient still has his central scotomata. The case seems to confirm the view held by some, that cases of hereditary optic atrophy may show considerable improvement.

Leo Wolfenstein asked whether a papillitis precedes the atrophy in the hereditary form of the disease.

W. E. Bruner said that the patient reported showed a low grade of neuritis before the atrophy began; this is the usual finding.

3, Edema of the Retina, by C. C. Stuart.

A patient first seen September 15, 1911, complained of sudden loss of vision which began ten days before, with headache, and then blurring of vision, mostly of the right eye. The patient's family and personal history were negative. In February of 1911 she had had a slight attack of conjunctivitis of both eyes. At the time of the first examination the vision of the right eye was 3/50 and of the left eye 6/20. There were no hemorrhages; the arteries were very small and there were seeming breaks in the arterial currents; there was great loss of the red reflex. Two weeks later small retinal hemorrhages were seen; the macula was swollen. On October 11 the swelling of the macula had begun to subside, and four days later four small hemorrhages were seen in the right retina. The right eye showed a white band extending from the disc to the macula. The left eye also showed stellate bands radiating from the disc. These suggested areas of atrophy. In October, 1912, the edges of the disc were hazy. On the temporal side of the right disc there was a black heaped up area, with salt and pepper areas of pigment disturbance. The left eye was much similar. At this time the vision was 6/32 for the right eye, and 6/4 for the left. The treatment had been increasing doses of mercuric bichlorid and potassium iodid.

F. C. Herrick, who had referred the patient to Doctor Stuart, said that 18 months before marriage the patient's husband had shreds in the urine and gave a history of acute gonorrhoea some 3 or 4 months previous to this. The shreds disappeared rapidly under treatment. The Wassermann reactions of both the patient and her husband were negative. The patient's spinal fluid showed 65 cells per field and the Noguchi globulin test was positive. The cell count and the positive Noguchi reaction indicated the possibility of lues, but there was absolutely nothing in the history of the patient or the husband pointing definitely to syphilis. The intracutaneous tuberculin reaction was negative. The patient gained in weight under the antileptic treatment, which was continued for one year. It was discontinued for 6 months, and then mercurials were not well borne.

W. E. Bruner said that he had seen the patient in September, 1911, during the illness of Doctor Stuart; the edema of the retina was quite well marked at that time. In view of the lesions which persist he suggested that the edema might have been choroidal rather than retinal.

C. C. Stuart said that evidently the process, which attacked the right eye first, was more destructive in that eye, since the vision has never come back as well as in the left eye. The interesting points in the case were the edema, the gradual subsidence of the latter under antileptic treatment, and the possible etiology.

## COUNCIL MEETING

A regular meeting of the Council of the Academy of Medicine of Cleveland was held Wednesday, June 11, 1913, the President, H. L. Sanford, in the chair.

The names of the following applicants for active membership were ordered published: Joseph Kurlander, Harold A. Budd, W. G. Ebersole, Joseph B. Kollar, Hugh J. Leslie, C. J. Carothers, John Alexander Hunter.

The following were elected to active membership: W. D. Fullerton, M. G. Kochmit, H. Lester Taylor, T. Wingate Todd.

C. F. Dutton was transferred to the nonactive list.

The committee on the annual outing of the Academy was directed to hold the picnic in the latter part of July.

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**Medicine Leading in Educational Progress.**—A bulletin issued recently by the United States Bureau of Education contains an interesting chapter on the standards of medical schools. After a brief history of these standards prior to 1900 the bulletin says: "A phenomenal fruition has come, however, in the last half dozen years, due chiefly to the conferences and work of the Council on Medical Education of the American Medical Association. . . . No more marvelous chapter in the history of educational standards can be found than in a review of the work of these conferences as shown by the report for the first five years." Further the bulletin says: "The practical bearing of medical education on the life and death of mankind has made its development and coordination with general education more than an academic question and has accelerated the movement for the solution of several educational problems. It has made clear that the detached professional school must become an integral part of a university, that commercialism . . . must be displaced and that educational institutions must be supplemented by the state in medical practice acts and expert examining boards. The advances of science and of medicine by which medicine is the application of science . . . to the prevention and cure of disease, have made such drafts on the time of the student and so added to the cost of instruction, that a reorganization of education outside medicine from the bottom to the top has been demanded." It is apparent, therefore, that the largely attended educational conferences conducted by the Council on Medical Education and the wide publicity given by the *Journal of the American Medical Association* to the reports of these conferences and to educational statistics collected from various sources, have not only produced remarkable improvements in medical schools but also have exerted a strong influence toward the solution of problems in other lines of education. The work of the Council in inspecting and standardizing medical schools has doubtless led to the efforts now being made toward standardizing colleges of liberal arts and universities. Surely it is time accurate information should be available regarding the actual conditions under which all degrees in this country are granted. Even in this "land of the free and home of the brave" conscienceless educational institutions should not be given unlimited license to peddle out degrees at so much each, or without requiring a reasonable minimum of knowledge for those degrees and the public should have the right to know for each institution what that minimum is. In its campaign for better medical schools, the American Medical Association has shown how results are to be obtained—first, by thorough investigation and second by giving extensive publicity to the conditions found.—(*J. A. M. A.*)

### Book Reviews

**Tuberculin in Diagnosis and Treatment.** By Francis Marion Pottenger, A. M., M. D., LL. D., Medical Director of the Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California. Cloth, 243 pages, 35 illustrations and 1 colored plate; \$3.00. C. V. Mosby Company, St. Louis, 1913.

This volume from the pen of one who is so ably qualified to write upon this subject will be a great help to those who advocate the use of tuberculins in the treatment of tuberculosis. The author's way of presenting the subject and his tremendous experience along these lines make his work all the more valuable. In simple language the author very thoroughly discusses "Tuberculin Tests," "Tuberculin in the Treatment of Tuberculosis," "Hypersensitiveness," "Evidences of the Therapeutic Value of Tuberculin," "Technic of Administering Tuberculin," "Temperature Curve in Tuberculosis." The appendix contains a translation of Koch's original announcement of the discovery of tuberculin. This volume should be in the hands of all those who are interested in the diagnosis and treatment of tuberculosis.

J. C. P.

**Golden Rules of Diagnosis and Treatment of Disease.** Aphorisms, Observations, and Precepts in the Method of Examination and Diagnosis of Disease, with Practical Rules for Proper Medical Procedure. By Henry A. Cables, B. S., M. D., Professor of Medicine and Clinical Medicine at the College of Physicians and Surgeons; Consultant at Jefferson Hospital, etc. 2nd edition, revised and rewritten. Cloth, 318 pages; \$2.25. C. V. Mosby Company, St. Louis, 1913.

The title of this book seems rather a misnomer, as one would understand by "Golden Rules" some important practical facts or principles, which have been found reliable by experience. As a matter of fact the book is really in the nature of a quiz compend, based on a textbook of medicine. It enumerates the well known points in the diagnosis and treatment of the various diseases. There is no discussion of subject matter and the book is accordingly quite elementary in character.

Apparently the points with reference to mitral stenosis and insufficiency have been confused, as on page 140 one reads under the heading of mitral insufficiency that the "pulse is irregular with no two beats of equal force or volume." No mention is made of the pulse under mitral stenosis.

V. C. R.

**Physical Diagnosis.** By Richard C. Cabot, M. D., Assistant Professor of Medicine in Harvard University. 5th edition. Cloth, 519 pages, 268 illustrations; \$3.00. William Wood & Company, New York, 1912.

The book is in general much the same as the previous edition, with the addition of several new chapters and a number of illustrations. Of the new chapters that entitled "Arteriograms, Phlebograms and Electrocardiograms" is perhaps the most valuable. It gives a clear and concise discussion of the recent advances in the physiology of the heart, with especial reference to heart block, auricular fibrillation, paroxysmal tachycardia, premature contractions of auricle or ventricle and coupling of heart beats and alternation.

There are numerous illustrations of types of disease including some of the less common conditions such as Paget's disease of the bone. Some of the newer laboratory methods, including the Wassermann reaction, are merely mentioned. The use of tables showing the relative frequency of various conditions causing a given symptom is surely to be commended.

V. C. R.

**Golden Rule Series: Golden Rules of Gynecology.** Aphorisms, Observations, and Precepts on the Proper Diagnosis and Treatment of Diseases of Women. By George B. Norberg, M. D., Kansas City, Missouri; Professor of Diseases of Women and Clinical Gynecology,

University Medical College; Gynecologist, Kansas City General Hospital, etc. Cloth, 8vo, 253 pages, \$2.25 net. C. V. Mosby Company, St. Louis, 1913.

This book is in no sense a text; it is a reminder. One picks it up profitably at odd moments. The material is well chosen and concisely stated. Each of its 225 pages makes definite statements of fact. It of course suffers the usual limitations of the compend type. A. J. S.

Müllers Serodiagnostic Methods. Authorized Translation from the Third German Edition. By Ross C. Whitman, B.A., M.D., Professor of Pathology, University of Colorado School of Medicine. Cloth, pp. xiii and 146, 7 figures; \$1.50 net. J. B. Lippincott Company, Philadelphia, 1913.

Müller's very practical little book on serodiagnostic methods quickly went into its third edition in Germany; it is this latest edition, bearing references to the literature of methods and modifications down to the latter half of the past year, which has been translated by Whitman. It is essentially a laboratory manual, in that it gives exact and concise directions for the performance of the various methods included. Theoretical details are omitted. The apparatus required is listed under each reaction, the technic is outlined step by step, and the determination of the results is illustrated by actual examples. In addition, and this renders the book of some value to those who, not directly interested in the actual doing of serological work, still wish to have some knowledge of the fundamentals which underlie serology, each test is preceded by a short paragraph which summarizes the principles upon which the test is based, and another which states the practical applications of the test. All the tests which deserve serious consideration have been included, and of the more important ones the various modifications are given. Thus, in addition to the Wassermann syphilis diagnosis method, six modifications are detailed; this in addition to the various other methods of syphilis diagnosis which have been proposed, as the precipitin test, the cobra venom test, etc. Of course, all the methods described do not and cannot have equal value; some cannot be considered to have a sufficient basis to give them standing; but all are given in such a way that the individual worker can try them out for himself.

The translation of such a book of explicit directions gives little occasion for the expression of individuality upon the part of the translator. It is to be hoped that the spelling Kny-Scherer instead of Kny-Scheerer and Berkfeldt instead of Berkefeld is only an oversight on the part of the translator, and not an example of a lack of care which might invalidate some of the quantitative methods. O. T. S.

Laboratory Methods. With Special Reference to the Needs of the General Practitioner. By B. G. R. Williams, M. D., assisted by E. G. C. Williams, M. D. With an introduction by Victor C. Vaughan, M. D., LL. D., Professor of Hygiene and Physiological Chemistry and Dean of the Department of Medicine and Surgery, University of Michigan. 2nd edition. Cloth, 210 pages, 43 illustrations; \$2.50. C. V. Mosby Company, St. Louis, 1913.

In reviewing the first edition of this book we meted out to it considerable praise, because it was felt that such a book ought to stimulate the practitioner with modern training to use laboratory methods whenever available. The specialist with a more or less completely equipped laboratory and with sufficient time at his command needs a more complete guide to more varied and more intricate methods than the practitioner can use. If the latter can be made to realize that a tumbler answers adequately many of the uses of a beaker, he will use methods that he would otherwise forget; and ultimately he may be led to see the value of a modest laboratory equipment and of more refined procedures. It is to be hoped that the authors will not permit themselves, in future editions, to overvalue simplicity. Simple methods have their place; but the prac-

tioner should know their limitations; he should not be made to feel that simplicity can be made to replace exactitude and refinement of method.

Changes which have been made in the second edition are the inclusion of tests for albumin in sputum, the rapid Widal method of Bass and Watkins, Noguchi's butyric acid test for syphilis, and the urobilinogen test for hepatic function. To make room for the latter the Cambridge reaction has been omitted. A new six page appendix describes the bedside estimation of urinary acidity; the detection and significance of indican, indolacetic acid, and Bence-Jones albumose in the urin; the sulphosalicylic acid test for urinary albumin; and the Hermann-Preutz test for syphilis.

We are still of the opinion, previously expressed, that such a book as this has great value, since it ought to help the practitioner make use of laboratory methods. Upon another point, also, we have not found reason to change our opinion; we do not feel that either the passage of time or the usage of the authors is sufficient to make "treponemae" a proper plural of "treponema." O. T. S.

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The Labyrinth. An Aid to the Study of Inflammation of the Internal Ear. By Alfred Braun, M. D., New York, and Isidore Friesner, M. D., New York. Cloth, 250 pages, with 54 figures in the text and 34 halftones on 32 plates; \$4.00 net. Rebman Company, 1123 Broadway, New York, 1913.

English speaking otologists are to be congratulated on the appearance in their own language of so comprehensive a work on the labyrinth as this recent work of Braun and Friesner. In no department of otology have such strides been made in recent years as in this, for in no other branch was so little known. Inasmuch as we are almost entirely indebted for this work to the Germans, or more particularly to the Vienna school, it follows that most of the important literature is in the German language. "Though our knowledge of the subject," as stated by the authors in their preface, "is still in the developmental stage, it is necessary for us all to become familiar with those basic truths regarding labyrinth disease, which have thus far been established beyond doubt." This aim of the joint authors is certainly well carried out in their book. Although containing no original contribution from them, it forms a most complete summary of the literature up to the present time and states most clearly and precisely the last word of the accepted authorities on this subject.

Under the successive chapters entitled Anatomy, Physiology, Methods of Examination, Pathology, Symptoms and Treatment, the entire field is covered in a most logical and concise order. The style is clear and distinct, and the many points, at first apparently abstruse, are discussed in such a manner as to leave few misgivings in the reader's mind. The illustrations and schematic drawings, most of which are original, contribute decidedly to the understanding of the text. The work is a decided help to those interested in the subject and should be of value not only to the otologist, but to the internist and more especially the neurologist.

While commenting on the uniform excellence of the work we cannot refrain from criticising the old, and to us antiquated, designations of the various canals, viz., external, superior and posterior; instead of horizontal and anterior and posterior vertical. The indicating too of points of interest in the drawings by number or letter, leaving the reader to grope through several lines of fine print at the bottom of the page for explanation, is antiquated and consumes an amount of time as useless as it is unnecessary. W. B. C.

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The Modern Hospital: Its Inspiration; Its Architecture; Its Equipment; Its Operation. By John A. Hornsby, M. D., Secretary Hospital Section, American Medical Association; Member American Hospital Association, etc., and Richard E. Schmidt, Architect, Fellow American



Institute of Architects. Octavo volume of 644 pages with 207 illustrations. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$7.00 net; half morocco \$8.50 net.

This book is a comprehensive treatise on all subjects connected in any way with a hospital; it is also an elaborate manual for all kinds of hospital workers. There are many discussions of contemporary theories, but always there is given in detail at least one good practical way to do everything. In this book one will find definite, practical suggestions from an expert on the planning of everything from the front office to the garbage shed. There are few architects, who would not profit by the reading of the chapters on Hospital Architecture and Equipment of a Hospital before they finished the plans for the local institution to be built. Hospitals last longer than the architects of any community; first hand experience is therefore rare. This fact combined with the small voice in the planning sometimes given those who are to live and work in the institution has shown by results the need for the placing of experience in permanent and available form.

The chapters on furniture and all kinds of equipment are elaborate, giving the advice of a recognized hospital expert on the varied articles used, everything from the newest operating table to the best kind of a mop.

The production of new building materials, other operating tables or better mops may soon bring a depreciation in the value of the chapters dealing with these subjects, but it will be many, many years before the chapters on Hospital Management and Organization cease to be remarkable for the strong, advanced, ideal but entirely practical principles presented. In these pages of discussion of the many factors that go to make up the organization of a hospital, the reader—it matters not if he be a trustee, a superintendent, a member of the staff or a department worker—is led to a realization of the responsibility and the high efficiency required of him, and to a realization that he can climb if he will without pulling others down. The great problem of a hospital is to get so many big men, big in so many different ways, all to reach into the same little ward to work for the one patient without anyone feeling the presence of another as an oppression and with no one impeding full free work of another. We all know men who demand the whole field to themselves and who drive all others to the extreme limits of their sphere of influence; we know others who can reach with power far around, over and through the spheres of many men, disturbing them not at all and in no way hindered by their presence. The latter are fitted for hospital work and none others. One can see such a person in every position discussed.

"The Modern Hospital" by Hornsby and Schmidt is the best book on the subject that the writer has seen. A. R. W.

### Acknowledgements

A Text-Book of Biology for Students in Medical, Technical and General Courses. By William Martin Smallwood, Ph. D. (Harvard), Professor of Comparative Anatomy in the Liberal Arts College of Syracuse University and in Charge of Forest Zoology in the New York State College of Forestry at Syracuse. Cloth, pp. xiv and 285, illustrated with 243 engravings and 13 plates; \$2.75 net. Lea & Febiger, Philadelphia and New York, 1913.

Diseases of the Stomach. Including Dietetic and Medicinal Treatment. By George Roe Lockwood, M. D., Professor of Clinical Medicine in the Columbia University; Attending Physician to Bellevue Hospital, New York. Cloth, pp. vi and 624, illustrated with 126 engravings and 15 plates; \$5.50 net. Lea & Febiger, Philadelphia and New York, 1913.

Hygiene and Sanitation. A Text-Book for Nurses. By George M. Price, M. D., Director, Joint Board of Sanitary Control; Director of Investigation, New York State Factory Commission. Cloth, pp. viii and 236; \$1.50 net. Lea & Febiger, Philadelphia and New York, 1913.

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; Assisted by Leighton F. Appleman, M. D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. Vol. XV, No. 2. Whole No. 58. Vol. II, June, 1913: Hernia. Surgery of the Abdomen, Exclusive of Hernia. Gynecology. Diseases of the Blood. Diathetic and Metabolic Diseases. Diseases of the Spleen, Thyroid Gland, Nutrition, and the Lymphatic System. Ophthalmology. 449 pages. Price, \$6.00 per annum. Lea & Febiger, Philadelphia and New York.

A Course in Normal Histology. A Guide for Practical Instruction in Histology and Microscopic Anatomy. By Rudolph Krause, A. O. Professor of Anatomy at the University of Berlin. Translated by Philipp J. R. Schmahl, M. D., New York. Part I: Microscopy. Cloth, pp. x and 86, 30 figures; 75 cents net. Rebman Company, 1123 Broadway, New York, 1913.

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Sterility in the Male and Female and its Treatment. By Max Hühner, M. D., Chief, Genito-Urinary Department, Harlem Hospital Dispensary, New York, etc. Cloth, pp. xvi and 262, \$2.00 net. Rebman Company, 1123 Broadway, New York, 1913.

Ophthalmoscopic Diagnosis. Based on Typical Pictures of the Fundus of the Eye, with Special Reference to the Needs of General Practitioners and Students. By Dr. C. Adam, Assistant at the Kgl. Univ.-Augenlinik, Berlin. Translated by Matthias Lanckton Foster, M. D., Ophthalmic Surgeon to the New Rochelle Hospital, etc. Cloth; pp. xx and 229; with 86 colored pictures on 48 plates and 18 illustrations in the text; \$6.00 net. Rebman Company, 1123 Broadway, New York, 1913.

Therapeutics of the Gastro-Intestinal Tract. By Dr. Carl Wegele. Adapted and Edited, with Additions on the Diagnosis of the Diseases of the Esophagus; Diagnosis of the Diseases of the Gastro-Intestinal Tract; Duodenal Tube and its Uses; Diseases of the Pancreas; and X-Ray Examinations of the Gastro-Intestinal Tract. By Maurice H. Gross, M. D., Attending Gastro-Enterologist to the Har Moriah Hospital; and I. W. Weld, M. D., Attending Physician to the Har Moriah Hospital, New York. Cloth; pp. xvi and 329; with 52 illustrations in the text and 2 figures in colors on one plate; \$3.00 net. Rebman Company, 1123 Broadway, New York, 1913.

Vaccine and Serum Therapy. Including also a Study of Infections, Theories of Immunity, Specific Diagnosis, and Chemotherapy. By Edwin Henry Schorer, B. S., M. D., D. P. H. 2nd edition. Cloth, 300 pages, illustrated, \$3.00. C. V. Mosby Company, St. Louis, 1913.

Fibroids of the Uterus: Their Pathology, Diagnosis and Treatment. By Sir John Bland-Sutton, Surgeon to the Middlesex Hospital and its Cancer Charity. Leather, 249 pages, with 39 illustrations. Science Reviews, Limited, 36 Whitefriars St., London, E. C.

The Practical Medicine Series. Vol. I, Series 1913: General Medicine. Edited by Frank Billings, M. S., M. D., Head of the Medical Department and Dean of the Faculty of Rush Medical College; and J. H. Salisbury, A. M., M. D., Professor of Medicine, Chicago Clinical School. Cloth, 404 pages, with 13 figures in the text and 12 plates, \$1.50. The Year Book Publishers, Chicago.

The Practical Medicine Series. Vol. II, Series 1913: General Surgery. Edited by John B. Murphy, A. M., M. D., LL. D., Professor of Surgery in the Northwestern University, Attending Surgeon and Chief of Staff of Mercy Hospital, etc. Cloth, 632 pages, with 206 figures in the text and 44 plates, \$2.00. The Year Book Publishers, Chicago.

Summaries of Laws Relating to the Commitment and Care of the Insane in the United States. Prepared by John Koren. Paper, 297 pages, \$1.00. The National Committee for Mental Hygiene, 50 Union Square, New York, 1912.

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Municipal Ordinances, Rules and Regulations Pertaining to Public Health. Adopted from July 1, 1911, to December 31, 1911, by cities of the United States having a population of over 10,000 in 1910. By John W. Trask, Assistant Surgeon General, U. S. P. H. Service. Reprint No. 121 from Public Health Reports, Jan. 26, 1912, to Oct. 4, 1912, inclusive. Government Printing Office, 1913.

Rat Proofing: Its Practical Application in the Construction or Repair of Dwellings or Other Buildings. By Frieuch Simpson, Passed Assistant Surgeon, U. S. P. H. Service. Reprint No. 122 from Public Health Reports, April 11, 1913. Government Printing Office, Washington.

Soil Pollution: The Chain Gang as a Possible Disseminator of Intestinal Parasites and Infections. By Ch. Wardell Stiles, Ph. D., Professor of Zoology, Hygienic Laboratory, U. S. P. H. Service. Reprint No. 127 from Public Health Reports, May 23, 1913. Government Printing Office, Washington.

Typhoid Fever at Albany, N. Y.: An Account of the Recent Outbreak Due to Use of Raw Hudson River Water Following Flooding of Filtration Plant. By Theodore Horton, Chief Engineer, New York State Department of Health. Reprint No. 128 from Public Health Reports, May 23, 1913. Government Printing Office, Washington.

Pellagra: A Report on its Epidemiology. By R. M. Grimm, Passed Assistant Surgeon, U. S. P. H. Service. Reprint No. 120 from Public Health Reports, March 7 and 14, 1913. Government Printing Office, Washington.

Publications of the Massachusetts General Hospital: Medical and Surgical Papers, Volume IV, January, 1913, No. 1.

Leland Stanford Junior University Bulletin. Second Series, No. 68. Annual Announcement, 1913-1914, Department of Medicine.

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**Intern Work Required for Graduation.**—Rush Medical College will require all students entering for the summer quarter of 1914 and thereafter to register for a five-year medical course. The fifth year is to be spent by the student either in graduate work in one of the departments of the college or as an intern in an approved hospital under the constant supervision of the college faculty. The fifth-year course was established in 1905, but was made optional owing to the wording of the Illinois practice act which required that only graduates of medical schools could serve as interns in hospitals. The practice act has since been amended, thereby permitting the college to require the intern year prior to granting the degree. This makes three medical colleges which have definitely decided to require the fifth year of intern or other clinical

work. In 1910 the University of Minnesota College of Medicine adopted the requirement for all students entering in the fall of 1911 and thereafter. A few weeks ago also Leland Stanford Junior University Department of Medicine announced a similar requirement for all students entering in 1914 and thereafter. There is also one state, Pennsylvania, which after Jan. 1, 1914, will require that every candidate in order to be eligible to receive a license to practice in that state must have first obtained an internship, which, however, need not necessarily have been obtained prior to graduation, but must have been taken in a hospital approved by the Pennsylvania board. There is much to say in favor of the college requiring the internship prior to granting the degree. The chief advantage is the constant check which the college will or should have on the intern's work; this will be in marked contrast to the haphazard manner in which interns, in some instances at least, carry out their obligations to the hospitals. This new arrangement gives assurance of a better training for the intern, of more satisfactory intern service for the hospital, and of safer and more thorough care of the patients in the hospital. Altogether, this next great step in the advancement of medical education, which is apparently to be brought about in the near future, will provide for the public more thoroughly qualified and skilled practitioners of medicine.—(J. A. M. A.)

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**New York's Action on the Friedmann Institute.**—An occurrence which, rightly considered, serves to add weight to the demand for governmental investigation of tuberculosis treatments, is the action of the New York City Board of Health in prohibiting treatments of the Friedmann class until they have been investigated. It will be recalled that the plan for exploiting the Friedmann treatment, when the U. S. Public Health Service refused to endorse it, contemplated the preparation of the cultures in each state. Thus, since the product was not to become an article of interstate commerce, the United States Public Health Service would not have jurisdiction over its sale. Its exploitation would be a matter exclusively for local control. The Board of Health of New York City has taken action to prevent administration of living bacterial organisms for the prevention or treatment of disease in the city, until full and complete data regarding preparation, dosage and methods of administration have been submitted to the board, and until the state board has granted permission for the use of such preparation. The first thought which comes to one's mind on reading of this action is the hope that other boards of health, city and state, especially the latter, may feel their responsibility as has the New York City Board of Health. The second thought is the reflection that where no power exists, no responsibility can lodge. Few, if any, boards of health in this country have power to deal with the situation so effectively as has the New York board. In one state the control of serums, vaccines, etc., may be the business of the state board of pharmacy; in another, that of the state department of agriculture; in another, that of the laboratory of the state university; while in still others, there is actually no body legally constituted to cope with the situation. The need for adequate legislation on the subject throughout the country is at once apparent, as is also the need for a central body to aid in correlating all the data and to furnish expert advice to the authorities on whom may fall the responsibility for action.—(J. A. M. A.)

**Ohio State Board Examinations**

Held at Columbus, June 2 to 5, 1913.

**Physiology**

1. Name the principal varieties of connective tissue, where are they found and what purpose do they serve?
2. State the disposition of the fat principles of food after digestion; carbohydrate principles; effect of alcohol in small quantities with food.
3. What is understood by absorption?
4. Name four forces concerned in the circulation of the blood.
5. What effect do extremes of temperature have on respiration? What effect has age?
6. Describe the suprarenal capsules. What is their function?
7. What is the influence of the nervous system in the production of sweat?
8. Name the five laws of reflex action (Pflüger). How do they work?
9. Describe the process known as ovulation.
10. Describe the function of the tympanic membrane; Eustachian tube.

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**Chemistry**

1. Give properties and chemical formulae of (a) carbon dioxide; (b) carbon monoxide.
2. Give a test for indican and state its clinical significance when found in urine.
3. Define (a) aldehyd; (b) alkaloid; (c) glucosid.
4. Name and differentiate the three classes of sugar.
5. What are proteids and from what are they derived?

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**Anatomy**

1. Locate and describe the scapula.
2. Give the course and relations of the brachial artery.
3. Give the boundaries of the fourth ventricle.
4. What structures pass through the jugular foramen?
5. Describe the urinary bladder of a male and give its relations.

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**Pathology**

1. By what agencies does the body protect itself against the entrance and harmful effect of pathogenic bacteria?
2. Describe morbid anatomy of bronchopneumonia.
3. What changes take place in extravasated blood? Name them.
4. What changes take place in an inflamed part, causing redness and swelling?
5. Describe the process of primary healing; of secondary healing.

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**Materia Medica and Therapeutics (Regular)**

1. Briefly discuss the serum and vaccine theories.
2. Name four principal serums, give mode of administration, dose and use of each.

3. What drugs would you use in anemic conditions? Write two prescriptions using the drugs named.
4. Mention two intestinal antiseptics. Give therapeutic use and dose of each.
5. Name three hypnotics; indicate use and dose of each.
6. State the physiological action, use and administration of hot and cold water.
7. Name two cardiac stimulants and sedatives and indicate dose of each.
8. Give the composition of Dover's Powder. State its action, use and dose.
9. Give the physiological action of *Nux vomica*, name its principal alkaloid and state its use and dose.
10. Give the range of indications for the use of galvanism and high frequency currents.

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#### Materia Medica and Therapeutics (Homeopathic)

1. Briefly discuss the serum and vaccine theories.
2. State physiological action, use and administration of hot and cold water.
3. Differentiate between *Bryonia*, *Phosphorus* and *Causticum* in pulmonary affections.
4. Differentiate between *Nux vomica*, *Carbo-veg.*, and *Pulsatilla* in gastrointestinal diseases.
5. Name three principal alkaloids of opium, give physiological dose and antidote treatment for poisoning by one.
6. Give leading characteristics for *Calcarea carbonicum*; *Sabina*; *Mercurius dulcis*.
7. Name three hypnotics; give use and dose of each.
8. Give range of indications for the use of galvanism and high frequency currents.
9. Name four principal serums, give mode of administration, dose and use of each.
10. Name two snake poisons and give general indications for their use.

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#### Materia Medica and Therapeutics (Eclectic)

1. Name some agents used for active hemorrhage. For passive hemorrhage. Give methods of use.
2. In what class of diseases would you prescribe *Iris versicolor*?
3. What symptoms or specific indications call for *Macrotys*?
4. What is *Santonin*? For what used? Give dose.
5. Give specific indications for *Apocynum*.
6. Give properties, uses and doses of *Pulsatilla*.
7. In what class of diseases and in what form and dose would you prescribe *Bryonia*?
8. In what condition of the heart would you prescribe *Digitalis*?
9. When is *Nux vomica* to be prescribed?
10. Give range of indications for the use of galvanism and high frequency currents.

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#### Diagnosis

1. State the difference between organic and functional murmurs.
2. Describe method of examining the size of the spleen.
3. What is the diagnostic significance of edema of one arm and hand?

4. Describe rales, mention varieties and state diagnostic significance.
5. What are friction sounds and what do they signify?
6. What pathological significance has an increased vocal fremitus?
7. What is dyspnea and what does it signify?
8. Describe aphasia, name varieties in reference to localized lesions.
10. In what pathological conditions is ocular paralysis present?

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### Practice

1. Name the different forms of nonmalignant strictures of the rectum. How far above the anus is a simple stricture usually found.
2. Describe your procedure in making a physical examination of the abdomen.
3. Describe the urinary findings in diabetes mellitus and chronic interstitial nephritis.
4. Make a differential diagnosis of pleuritic and pericardial effusion.
5. Define and give etiology of neuritis.
6. Give pathology of typhoid fever. Name some of its complications.
7. Give symptoms and management of paranoia.
8. Differentiate between renal and hepatic colic.
9. Give the differential diagnosis of variola.
10. Give the differential diagnosis between paralysis agitans and tabes dorsalis.

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### Surgery

1. Discuss acute osteomyelitis.
2. Describe complete inguinal hernia; give symptoms of strangulation and treatment.
3. Name varieties of goiter and mention the indications for surgical interference.
4. What lesions would you consider in a severe injury about the ankle joint?
5. In an oblique fracture of the lower third of the femur, state the usual position and give the muscular control of the fragments.

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### Obstetrics

1. State your views with reference to examinations and what you would expect to learn by them.
2. Name some of the causes and give treatment of hemorrhage after labor.
3. How would you distinguish one shoulder from the other, when the hand and arm cannot be reached?
4. Outline general scheme of treatment for persistent and pernicious vomiting of pregnancy.
5. Give diagnosis and management of the third position of the vertex.

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### Dermatology, Syphilology and Diseases of the Eye, Ear, Nose and Throat

1. Describe infantile eczema; outline its treatment.
2. Differentiate scabies from prurigo.

3. How do you recognize and treat scabies?
4. Describe the initial lesion of syphilis.
5. Briefly outline treatment of syphilis.
6. What faulty anatomical conditions of the eye constitute myopia, and how can it be corrected by lenses?
7. Describe simple chronic rhinitis.
8. Describe otitis media purulenta and mention possible complications.
9. Describe iritis; give causes and treatment.
10. Describe laryngeal tuberculosis.

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### Medical News

**Examination of Candidates for Assistant Surgeon.**—Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B street, S. E., Washington, and at the Marine Hospitals at Boston, Chicago, New Orleans and San Francisco, on Monday, August 4, 1913, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service as internes in hospital for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

Candidates must be not less than 5 feet, 4 inches, nor more than 6 feet, 2 inches, in height.

The following is the usual order of the examinations: 1, Physical; 2, Oral; 3, Written; 4, Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and will serve wherever assigned to duty.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists of examination in the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature and natural sciences.

The clinical examination is conducted at a hospital.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments.

After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Assistant surgeons receive \$2,000, passed assistant surgeons \$2,400, surgeons \$3,000, senior surgeons \$3,500, and assistant surgeon generals \$4,000 a year. When quarters are not provided, commutation at the rate of \$30, \$40, and \$50 a month, according to the grade, is allowed.

All grades receive longevity pay, 10 per cent in addition to the regular salary for every five years' service up to 40 per cent after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

The examination usually covers a period of about 10 days.

For further information, or for invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."



**Astley Cooper Prize.**—The next triennial prize of three hundred pounds, offered under the will of the late Sir Astley P. Cooper, Bart., will be awarded to the author of the best essay or treatise on "The Physiology and Pathology of the Pituitary Body." Manuscripts must be sent to the Physicians and Surgeons of Guy's Hospital, London, S. E., on or before January 1, 1916.

**Victor C. Vaughan**, professor of hygiene and physiological chemistry and dean of the medical department of the University of Michigan, was elected president of the American Medical Association at the Minneapolis session.

**Congress of Surgeons.**—The fourth annual session of the Clinical Congress of Surgeons of North America will be held in Chicago, November 10-15.

**New Buildings for Washington University.**—On May 17 there were laid the corner stones of three new buildings of the medical department of Washington University, St. Louis. The buildings include Barnes Hospital, to cost \$1,000,000; a children's hospital, to cost \$2,500,000; and a medical teaching building, to cost \$1,000,000.

**The Alienists and Neurologists of the United States** met in Chicago, June 23-25, under the auspices of the Chicago Medical Society.

**Fellows of the American Medical Association.**—At the Minneapolis meeting of the American Medical Association the house of delegates adopted an amendment according to which the contributing members of the association will be known as fellows. The members of the constituent local societies will form the general membership of the association.

**Paul G. Wooley**, professor of pathology and dean, has resigned as dean of the medical department of the University of Cincinnati.

**Seward Harris**, of Dayton, has removed to Lisbon.

**County Society Meetings.**—Tuscarawas, at New Philadelphia, June 3. The program was as follows: "Gonorrhoea," by C. L. Tinker, of New Philadelphia; "Recent Advances in Oto-Laryngology," by A. J. Hill, of Canton; "Blood-Pressure and its Clinical Application," by G. F. Zinniger, of Canton.—Columbiana, at Salem, June 10. J. J. Buchanan, of Pittsburgh, read a paper on "The Diagnosis of Gastric Ulcer," and C. C. Booth, of Youngstown, one on "The Treatment of Burns."—Stark, at Canton, May 20. The following program was presented: "Rest," by Esther W. Tyrell, of Canton; "The Northeast Corner of the Abdomen," by J. P. DeWitt, of Canton; "Nerves and Food," by E. C. Eyman, of Massillon; "Maternal Impressions," by D. J. Jones, of Canal Fulton.—The Cass County Medical Society has elected the following officers: President, J. L. Pyle, of Chester; vice-president, C. R. Campbell, of Chester; secretary, G. W. Wentz, of Chester; treasurer, G. E. Lewis, of Chester.—Morrow, at Mt. Gilead, May 14. The following officers were elected: W. L. Case, president; G. H. Hugh, vice-president; T. P. Johnson, secretary; W. C. Bennett, treasurer.—Wood, Seneca and Hancock Tri-County, at Findlay, June 26. The following officers were chosen: Robert Steele, of Republic, president; E. H. Porter, of Tiffin, secretary; G. L. Hoag, of Fostoria, treasurer. Frank Winders, of Columbus, delivered an address on "Diseases of the Heart."—Richland, at Mansfield, June 17. Papers were read by J. A. Nichols, J. Harvey Craig, and John Burns.—Marion, at Marion, July 1. Papers were read by R. C. M. Lewis, A. M. Crane, Carl Sawyer, D. O. Weeks, and E. O. Richardson.—Athens, at Nelsonville, June 3. A paper on the effects of

enlarged adenoids and tonsils was read by A. C. Wolfe, of Columbus; S. E. Butt, of Nelsonville, presented an original poem.—Wood, at Bowling Green, June 4. The program was as follows: "Clean Up and Keep Clean," by F. V. Boyle, of Bowling Green; Surgical Indigestion," by M. H. Bowers, of Perrysburg.—Summit, at Akron, June 3. G. A. Miller, of Hudson, read a paper on "The Treatment of Typhoid Fever," and G. F. Miller, of Akron, one on "Pellagra."—Mercer, at Celina, June 3. H. C. Powers read a paper on "Acute Anterior Poliomyelitis."—Miami and Shelby counties, joint meeting at Troy, June 5. The program was as follows: "Mental Attitude and Superstition of Our Patients," by R. M. Shannon; "Goiter," by Dudley W. Palmer.—Portage, at Mantua, June 19. M. J. Lichty of Cleveland, read a paper on "The Value of Gastric Symptoms as a Diagnostic Sign of Gallstones," and was made an honorary member of the society.

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**Licenses Revoked.**—The state medical board has revoked the licenses of Katherine Wray, of Columbus, and W. S. G. Dillahunt, of Springfield, both of whom have served penitentiary sentences for alleged criminal practice.

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**Illegal Practice.**—Mrs. Marie Colnon, of Cleveland, was fined \$50 and costs after conviction of selling drugs unlawfully.

**Homer C. Brown**, of Columbus, secretary of the National Dental Association, has been appointed a member of the state board of health, to succeed Frank Warner.

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**Ohio Licenses** were issued to 140 who successfully passed the examinations held at Columbus, June 2-5.

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**Weber Memorial.**—As a memorial to the late Gustav C. E. Weber it has been proposed to raise a fund, the income of which shall be used to provide worthy students with free access to the Cleveland Medical Library.

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**Memorial Services** were held for the late Henry S. Upson in Amasa Stone Memorial Chapel of Adelbert College, June 15.

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**The Alumni Association** of the medical department of Western Reserve University elected the following officers at the annual meeting held June 12: C. C. Stuart, Cleveland, president; W. O. Portman, Jackson, Mich., first vice-president; H. J. Pool, Port Clinton, second vice-president; J. C. Placak, Cleveland, recording secretary; H. B. Hoskins, Cleveland, corresponding secretary; E. B. Rhodes, Cleveland, treasurer.

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**Lakeside Hospital Medical Society.**—The sixty-eighth regular meeting was held Wednesday, May 28, 1913. The program was as follows: Presentation of a Case of Pneumococcus Meningitis with Peculiar Vascular Findings, by J. E. McClelland; Presentation of a Case with Carcinoma and Tuberculosis of the Neck, by J. J. Tyler; Demonstration of a Malignant Uterine Tumor, by W. D. Fullerton; Demonstration of a Xanthoma of the Back, by Ailen Graham; Demonstration of Pathological Specimens, by H. O. Ruh.

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**Honorary Degrees Conferred.**—At the annual commencement of the College for Women of Western Reserve University, June 11, the degree of doctor of laws was conferred upon Helen Cordelia Putnam, of Providence, R. I., M. D., Woman's Medical College of Pennsylvania, 1889. At the commencement exercises of Western Reserve University, June 12, the degree of doctor of science was conferred upon John G. Gehring, of Bethel, Maine, M. D., Western Reserve University, 1885.

**Honor in Print.**—Add One More to the honor list of newspapers that close their columns to advertising swindles. Following the lead of the *Minneapolis Journal*, the *Wichita (Kans.) Beacon* comes out with a straightforward confession of past sins and promise of immediate reform. Its publisher, Mr. Henry J. Allen, declares flatly against the proposition that advertising space is merely merchandise to be sold to honest and dishonest advertisers alike, without moral responsibility on the part of the publication; a theory invented, we understand, by Beelzebub, the patron devil of frauds: "The *Beacon* is going to make an effort hereafter to be responsible for the character of advertising which appears in its columns. The paper will endeavor to educate the public to believe that what it sees in the news columns and in the advertising columns is alike worthy of serious attention as truthful statements." A sound single standard of journalistic morals. Both reader and advertiser will profit by it; the former immediately, the latter eventually. Meantime the sturdy Kansas daily turns its back on more than \$10,000 a year of "easy money" by announcing specifically the exclusion of the advertisements of clairvoyants, fortune tellers, soothsayers, hypnotists, psychics, magnetic healers, quack medical practitioners of every variety, and fake sales of all kinds. There is a useful roster for any publisher, to be kept on file as an index expurgatorius.—(*Collier's*)

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### Deaths

**John E. Dillon**, Miami Medical College, Cincinnati, 1877; formerly a practitioner of Woodsville and Antioch; died at his home near Barnesville, March 3, from heart disease, aged 78.

**Alex. A. Staats**, Cincinnati College of Medicine and Surgery, 1868; of Summerfield; died suddenly May 16, of heart failure, aged 70.

**Lewis C. Schutt**, Louisville Medical College, 1875; a practitioner of Toledo during the past 25 years; died May 22, aged 63.

**Adin Wilson Mitchell**, Cincinnati College of Medicine and Surgery, 1880; of Georgetown; died May 24, aged 65.

**John W. Shockey**, Physio-Medical Institute, Cincinnati, 1874; of Columbus; died at the home of his daughter in that city, May 26, aged 66.

**Frederick Forchheimer**, College of Physicians and Surgeons, New York, 1873; one of the most prominent physicians of Cincinnati and for many years a teacher in the Medical College of Ohio; author of "The Prophylaxis and Treatment of Internal Diseases" and "Therapeutics of Internal Diseases"; died in the Jewish Hospital, Cincinnati, June 1, sixteen days after an operation for relief of acute disease of the prostate, aged 59.

**Frederick Andrew Grossman**, Eclectic Medical Institute, Cincinnati, 1903; at one time postmaster of Cleves; was found dead under his overturned automobile, near Cleves, June 4, aged 56.

**Lovett Taft Guerin**, Starling Medical College, Columbus, 1870; of Columbus; a veteran of the Civil War; died in Grant Hospital, Columbus, June 3, from diabetes, aged 68.

**F. J. Baldwin**, retired; formerly of Bluffton; died June 16, at the home of his son in Findlay, of senile debility, aged 81.

**Charles Hoyt**, Pulte Medical College, Cincinnati, 1879; of Chillicothe; died June 20, of heart disease, aged 59.

**C. B. Humiston**, University of Michigan, 1874; of North Dover; died June 27, aged 62.

**Samuel H. Britton**, Western Reserve University, 1884; of Marion; died June 28, aged 54.



# The Cleveland Medical Journal

VOL. XII

JULY

No. 7

## The Operative Treatment of Fractures

By WILLARD BARTLETT, A. M., M. D., St. Louis

Since no comprehensive study of this subject is possible in a paper of moderate length, I have thought best to give you my own experiences along the lines of treatment suggested by Lane, Codavilla and Steinmann; the three who have, more than any others in recent times, contributed to this field of surgery.

The development of Lane's bone plating is too well known to need more than passing historical mention.

Codavilla first published in 1903 his suggestion of powerful and continued traction by the use of a metal nail driven transversely through bone, and though Steinmann wrote nothing on this subject till five years later he deserves full credit for having popularized and greatly extended the usefulness of the principle. His ideas are given in resumé in a paper entitled, "Nail Extension for Fractures," F. Steinmann, Privatdozent der Chirurgie, Bern.

Nail extension is based upon the same principle as continuous adhesive plaster extension, but sufficient pull cannot be exerted by adhesive plaster extension. The nail extension exercises constant pull as far as possible directly onto the peripheral fragment exclusively by means of a nail driven through the bone. The technique follows:

A pointed nail with a four-sided end is bored through the lower end of the peripheral fragment and the extension is fastened to the projecting ends of the nail. Anesthesia is easily secured by local infiltration.

The length of the nail is determined by the thickness of the limb at the place of insertion and the nail with pincette is boiled, then seized by forceps and its posterior end, which is also four-sided, is fixed in a hand-drill. The nail is pushed

down to the bone at a spot previously decided upon and disinfected, and is then bored through the bone till the ends project equally on both sides.

Driving is done by a drill, Doyen's trephine or electricity, avoiding use of hammer as also any preliminary incision or even boring of the track for the nail. After driving the nail, the sites of entrance and exit are protected with sterile gauze and sterile bandage.

In choosing the place for the insertion of the nail, the author says, "the nail must be altogether outside the fracture hematoma so there will be no infection along the nail. In the case of the lower half of the femur, infringe on the principle of direct attack upon the bone fragment and insert the nail into the head of the tibia; in the lower half of the leg, insert through the calcaneum. Avoid the medullary canal so if the nail is infected osteomyelitis may not result. Avoid the joint capsule and the danger of joint infection. Spare the line of the epiphysis. In fractures of the lower extremity the sites of choice are as follows: For the lower end of the femur, immediately above the condyle; a second at the tibia two and one-half fingers' width below the line of the knee-joint so that the outer half of the malleolus lies in front of the lower end of the styloid process of the fibula; another at the lower end of the tibia two fingers' width above the ankle, the outer half of the nail passing in front of the upper end of the external malleolus; another at the os calcis one to two fingers' width obliquely backward and downward from the tip of the external malleolus.

For the upper arm the site is at the lower end of the humerus above the condyle, in the olecranon or toward the periphery at the upper end of the ulna. For fracture of the elbow and lower end of the radius, two fingers' width above the wrist joint from the dorsal side."

Nail extension allows complete freedom as to the position of the extended limb and has the advantage of giving to the force of the extension any strength desired. It must be remembered that the same weight acts more strongly in nail than in adhesive plaster extension.

It is of comparative painlessness; some complain of pain for a short while but the pain is not greater than other strong extensions and is no contraindication for use. The pull can be in any direction, the fracture region is open to observation

and the freedom of the limb is not affected. It requires only two points for its application and for the rest it leaves the whole limb free for early functional treatment.

One disadvantage is the danger of infection and the delay in healing—decubital ulcers, abscesses and obstinate fistulae. Out of forty cases the author had one fistula of three months' duration, one over a year and the others healed in a few days or weeks.

The duration of extension receives too little consideration. Limit the duration as far as possible by early initial use of large weights, if there is any consolidation, or at the latest after three to four weeks by removal of the nail or by replacement by other, as adhesive plaster, extension.

Report of three of my own nail extension cases follow:

Case I: G. J., male, aged 27. Was admitted August 24, 1912. History: fell into a ditch on the right foot August 23, sustaining a Pott's fracture with much displacement. Fracture reduced under ether and a posterior Cabot splint applied. X-ray taken August 26 shows fracture of lower end of both bones and the anterior displacement of the foot.

August 31: pin inserted. The incision one-quarter inch in length was made over the external surface of the os calcis and a one-eighth inch drill was inserted, partly drilled and partly driven through the os calcis and a 35 pound weight applied.

There was much pain up to September 28. An X-ray taken that day showed good position and the pin was removed.

October 4: ankle joint movable.

October 13: patient up on crutches about the ward, for several days. Walked about on foot by supporting himself on the beds.

Patient discharged from hospital and no further history was obtained.

Case II: C. H., male, aged 24, bridgeworker, fell 35 feet September 25, 1912, and sustained a compound fracture of both bones of the left leg and a compound comminuted fracture of both bones of the right leg. The emergency treatment consisted of a reduction of the fracture of the left leg and the application of a posterior splint. The right leg was placed in a posterior splint.

September 28, Lane's bone plate was applied to the left leg and a nail extension was applied to the right.

October 11, the extension was so painful that its use was advised to be discontinued and a plaster paris cast was applied.

On November 27, the wound in the left leg was much smaller and the plate was loose. This was removed on December 1. X-ray showed partial union.

Unfortunately in this case the pin was removed by my successor in the service before a fair trial was given.

Case III: W. M., male, aged 20. Fell from a scaffold August 29, 1912, sustaining a Pott's fracture. Emergency treatment was the application of a splint which was removed on September 11. The fracture was reduced and plaster cast applied.

September 18: an X-ray showed fragments not in line.

September 21: Codavilla operation was performed. The patient complained of severe pain and on October 17 the nail was removed and a plaster paris cast applied.

October 27: cast was removed and revealed a slight infection of

the dorsum of the foot. Union was very bad and a lateral splint was applied which was discarded on November 4.

November 13: the patient was about on crutches. There was a sensory loss and a motor disturbance in all the toes but the small one. There was also a disturbance in the dorsum of the foot.

This case illustrates conclusively how little can be done with nail extension unless it is applied reasonably soon after the injury.

The following is an abstract from a paper by Mr. Arbuthnot Lane, entitled, "The Method of Procedure in Operations on Simple Fractures," which appeared in the *British Medical Journal*:

Previous to any operative procedure of fractures it is absolutely essential to obtain satisfactory radiograms of the injured parts. They should be taken in at least two planes crossing one another at right angles.

The plates used are of strong tough steel capable of being bent by powerful forceps so that the plates fit accurately any variable surface. A rigid plate is better in the case of an old fracture, as the bending strain it has to meet may be very great. It is necessary to have a variety of plates to meet the special requirements of each case.

The screws are in several gauges and lengths, the most useful being gauges 3, 5 and 7 and sizes  $\frac{1}{2}$ ,  $\frac{5}{8}$  and  $\frac{7}{8}$  inches. The screws are so cut that the thread extends to the head, there being no barrel to the screw. This does away with the excess of metal and the difficulty of finding the drill hole in the distal layer of the compact bone.

One thing that cannot be impressed too strongly is that the fragments must be restored accurately before a plate is fastened onto them. The mere fixation of a plate to fragments not in accurate apposition is as foolish as painfully frequent and the patient is worse off after the operation even if sepsis is avoided. There is nothing wrong with the principle, the fault is in its application.

The surgeon should endeavor to exclude the entrance of organisms into the wound and should make the incision of length sufficient to allow easy access to the seat of the fracture. The length and position of the incision is of little concern in the lower extremity but in the arm it is necessary to avoid damage to nerves and muscles. The skin of the patient is excluded from the field of operation. All bleeding is controlled by the use of long forceps capable of obliterating the lumen of the vessels, thus doing away with ligation. All the instruments are long in order that handles may project beyond the wound. In this way introduction into the wound of the gloved hand or any portion of the instrument which had come in contact with the glove is avoided.

The ends of the broken bone are clearly defined, the periosteum is divided, and separated if necessary. A length of each fragment is exposed sufficient to show the extent of the fracture and to carry plates long enough to retain the fragments in accurate apposition. The accurate coaption of fragments is brought about by exercise of manual dexterity and very little force is necessary.

If there is a comminution of fragments the surgeon meets this in the best way possible. It is usually effected by fixing a long steel plate securely to the lower fragment and then to the end of that fragment several smaller pieces by means of small plates and screws and finally securing the upper fragment to the stout steel plate.

In old fractures it is not necessary to cut the bone away until large areas of the fragments can be brought into apposition since an area left between the fragments will fill up with callus if the part be kept engorged with blood.

The edges of the deep fascia are not brought together by sutures except in a case of fracture of the femur. This allows free diffusion of



blood into the subcutaneous tissue which picks it up rapidly. Michel's clips are best for retaining the edges of the skin.

Bury the plate well beneath the muscle rather than immediately under the skin incision.

Prevent fixation of joints by movements at regular intervals, particularly where the knee and foot joints are involved.

The only obstacles met with are excessive comminution or such a fragile condition of the bone as renders it incapable of holding the screws.

No procedure in all surgery appears more convincing to me at the operating table than does the Lane method of treating fractures, especially in the hands of its expert author. However, its actual value can be established only by a study of end results. In my own seventy-seven cases the following bones were broken: Clavicle, 7; humerus, 17; radius, 1; radius and ulna, 3; ulna, 4; femur, 18; tibia, 15; tibia and fibula, 9; fibula alone, 3.

I have been able to trace thirty-nine of these patients for periods ranging from two to twenty-nine months after operation, and since I shall be very frank about their histories, it is only fair to the method to state that the other thirty-eight are known to have left the hospital alive and most of them in better shape than when they entered. Many walked out in full health, without dressing, splint or crutch, but some were removed in the original cast and dressing at the end of one or more weeks. Since I know that complications are possible during an indefinite period I prefer to consider none of those of whom I can give no accurate details since they left the hospital.

Among the thirty-nine which have been traced, there were 23 simple, and 16 compound fractures. Of the latter, 12 were fresh or granulating when the plate was introduced; while 4 were suppurating at the time of operation.

Of these thirty-nine patients, thirteen are known to have had their plates removed. Four plates had to be taken out in simple fractures and nine in compound.

Seven of those thirty-nine results are considered failures by me, and since we frequently learn more from our failures than from our successes, the details of these will be given in their entirety, while the thirty-two cured patients will not be considered further.

- (1) One woman died of delirium tremens and general sepsis sixteen days after plating the femur.
- (2) One man died of pneumonia eight days after his clavicle had been plated under ether.

(3) Three weeks after a compound fracture of the tibia, the screws became loose in consequence of suppuration and sloughing, hence were removed.

(4) A plate was removed from a badly infected femur three months after it had been applied in the correction of a compound fracture. This should hardly be called a complete failure since the fragments were in good position and the man eventually got a good leg.

(5) A child received a compound fracture of the tibia and died three days later of what seemed, in the absence of an autopsy, to be cerebral fat embolism. We had resorted to immediate plating of the tibia, which must then be classed as useless to say the least.

(6) In a compound fracture of the radius we applied a plate immediately, but gangrene necessitated amputation, this having been a severe railway injury.

(7) We implanted a plate in the treatment of an old infected compound fracture of the tibia, low down. The cortex was so thin and diseased that no screws held, hence this plate did no good.

The average time elapsed between the operation and the final report, which I am able to offer in all cases, is ten months. I have followed one of them twenty-nine months; three, twenty-four months; one, twenty-two months; one, twenty-one months; two, fifteen months; one, fourteen months; one, twelve months; two, nine months; three, eight months; five, seven months; six, six months; one, five months; two, four months; three, three months, and two, two months.

Extended mention must be made of one man; he made an ideal recovery after having had both tibia and fibula plated and worked almost two years without trouble of any kind. Then the picture changed; one morning he awoke with the injured ankle and leg greatly swollen, red and sensitive. X-ray examination showed practically nothing abnormal; ideal position of the fragments was evident. His plates were immediately removed, with negative bacteriologic findings. He was up and around in about two weeks and has been working without discomfort ever since. This case shows that we do not yet know just what to promise our patients as to the ultimate outcome of such operations. One is no longer justified in predicting that any

plate is going to remain indefinitely in place without giving trouble.

In four cases, a plate was imbedded in a suppurating wound. It will be admitted that there was no chance for success in one where practically no cortical substance was at hand for a screw hold, but it speaks well for the future of such cases that I have had three successful results in my only three favorable cases. These patients developed no serious reaction after the operation, which I believe is due, in part, to the fact that the wounds were flooded with tincture of iodine as soon as the conservative dissection was completed and packed with gauze after the plate had been applied.

So impressed was I in my early work with the difficulties inherent in certain cases that it seemed important to me to devise a traction instrument, as traction secured through manual efforts proved both insufficient and uncertain. A picture of this is printed in the *Journal of the American Medical Association*, October 21, 1911. It consists of a long screw and triangular frame almost two feet in length, which is bolted to the foot of the operating table in a horizontal position, if the fracture be one involving a bone of the leg. By turning the screw any amount of tractive force can be secured through a cord attached to the patient's foot. For a fracture near the ankle, two towels are looped around the foot and the screw attached to each. But if the fracture be high enough a very convenient way of getting traction is to fasten a screw eye to the heel of an ordinary high shoe, and attach the cord to this.

Every surgeon who has had personal experience in the use of Lane's bone plates appreciates that, in the treatment of recent fractures, no open operation is justified unless ideal approximation is to be obtained. This means that all the fragments must dovetail perfectly.

Great difficulty is often experienced in perfectly lining up two main portions of a broken long bone. A few millimeters tend almost invariably to prevent the axes of both from coinciding. To meet this need two instruments have been described by me, one in the *Annals of Surgery*, January, 1912, entitled "Clamp for Lining up Fractured Long Bones."

There are a number of advantages which especially characterize it:

(1) It is open above, so that the fracture line may be seen at all times.

(2) It holds the plate firmly on the bone, and supports the whole while the screws are being driven.

(3) It is easy to place in position, since each half is applied or removed separately.

(4) It consists of four inclined planes, so disposed that fragments of any shape or size are driven to a common axial centre.

In the paper which I read before the meeting of the American Medical Association in Los Angeles, in 1911, I gave my conclusions on a series of experiments intended to determine the force needed to dislodge thirty-four screws, half of them infected, from the long pipe bones of dogs, at intervals varying from one hour to seventy-one days. My conclusions were, that it requires but 41 7-9 pounds to dislodge an infected No. 3 screw from a dog bone, with a cortex of 2 mm. On the other hand, a pull of more than 95 pounds was required to draw the average clean screw of No. 3 gauge from bones of about 2 mm cortex. The corresponding human bones have a much thicker cortex; moreover, No. 5 and No. 7 screws are used, which are much larger in every dimension, to say nothing of the fact that as many as ten of them are imbedded at one time. It does not require much mental effort to picture the great amount of force needed to tear such a plate out of an aseptic wound when freshly applied, provided only it has been correctly applied, that is, by means of a drill the size of the screw barrel with the screw threaded to its head. In the experiments here described the screws were not observed under actual working conditions, since there was no pull or other external force acting on them during the healing process, as is the case when a Lane plate is used in the human being. I believe, too, that most surgeons consider the usefulness of the plate about over when a snug splint has been applied externally.

The primary object of a paper read at the 1911 meeting of the American Medical Association was to determine what happens when plates are screwed to fractured dog bones and the animals are allowed full freedom, without splint, or bandage.

Eight of my fifteen dogs, in which a bone plate was used thus, died as a result of the operation. One was an ether death, but the other seven were lost as a result of wound infection, if we can include one which mysteriously disappeared and

on which I have no definite data. This extremely high mortality has, of course, very little bearing on the situation as it confronts the human being, since it is impossible to keep splints and dressings on dogs' legs, to say nothing of the fact that they run about and bite out the skin stitches.

In no instance was a screw or plate found, at remote autopsy, to be directly in contact with the bone, there being always much intervening granulation tissue or fibrous connective tissue around the screws and plate. Hence, one cannot properly say that a screw does or does not hold in a bony socket. In the course of time bone in contact with metal disappears. In spite of this, as shown by my experiments, screws do hold remarkably well, even in infected wounds in many instances.

A committee of eighteen members was appointed by the Council of the British Medical Association in response to a recommendation by the Section of Surgery at the annual meeting of the Association, July, 1910, to determine the relative advantages of operative and nonoperative treatment of simple fractures. The report of the Committee was printed in the *British Medical Journal* of November 30, 1912, and a brief summary of their conclusions follows:

The cases treated by nonoperative methods were 2,596 and those treated by operative methods were 208. The latter were divided into three classes:

Class A: Cases in which operation was performed as soon as practicable.

Class B: Cases in which operations were performed on account of failure to obtain and to maintain accurate apposition of fragments by means of external mechanical appliances.

Class C. Cases in which operations were performed for nonunion, for deficient union or for faulty union. The Committee appreciates the fact that "the operative material available within the year selected is so small that it is undesirable to attempt to draw any final conclusions as to relative value of operative and nonoperative methods."

The Committee's conclusions are as follows:

(1) The results of nonoperative treatment in children under fifteen years are very good and unlikely to be improved upon materially by operative treatment. Of those treated nonoperatively 90.5 per cent had good functional results, and of those treated operatively 93.6 per cent had good functional results.

(2) It is possible by nonoperative treatment to obtain good results in children.

(3) In comparison with nonoperative results in children, the results of nonoperative treatment in those over fifteen years are not satisfactory.

(4) There is a progressive depreciation of the functional result of a nonoperative treatment as age advances.

(5) In cases treated by immediate operation the deleterious influence of age upon the functional result is less marked.

(6) In nearly all age groups operations show a higher percentage of good results than nonoperative treatment.

(7) Although functional result may be good with an indifferent anatomical result, the most certain way to obtain a good functional result is to first secure a good anatomical result.

(8) No method which does not definitely promise a good anatomical result should be accepted as the method of choice.

(9) Operative treatment should not be employed in consequence of failure of nonoperative treatment as the results of secondary operation compare unfavorably with primary operative results.

(10) It is necessary to insist that operative treatment require skill, experience and such facilities and surroundings as to insure asepsis.

(11) A considerable percentage of failures of operative treatment are due to infection of the wound, a possibility which may occur even with the best technique.

(12) The mortality directly due to operative treatment of a fracture of long bones has been so small that it cannot be urged as a sufficient reason against operative treatment.

(13) The nonoperative treatment will remain more safe and serviceable for surgeons and practitioners who are unable to avail themselves of the operative methods.

A perusal of the above authoritative report has served merely to strengthen the opinion which I had previously formed as to the indications for open treatment.

As a matter of course the patient's occupation influences our choice of a therapeutic procedure. A plasterer or fresco painter must reach above his head and in consequence needs a better clavicle than do the rest of us. A professional pianist must have arms which are above reproach as far as function is concerned. The same can be said of the legs of professional dancers, etc.

In addition to the above general statements on function, it may be said that an open operation is thought desirable in our hospital:

(1) When a leg case must be gotten out of bed early.

(2) In old cases of nonunion or *extreme* malunion.

(3) It is, of course, desirable in all fresh widely open fractures if shock be past.

(4) In chronically infected cases in which the bones lie bare. All compound wounds, whether suppurating or not, are to be packed and allowed to granulate. Generally speaking, the patient must always be a good surgical risk.

No general statement will ever cover all cases, since special considerations are bound to influence treatment of certain individuals. One thing is sure, that is, in spite of the most satisfactory advances of recent years, hardly any operative procedure is wholly without risk; hence I feel that we must, before submitting any bone case to operation, show very definitely why we are assuming even the moderate operative risk here involved.

## The Urethroscope: Its Importance in Urethral Pathology, Diagnosis and Treatment

By S. ENGLANDER, M. D., Cleveland

Desormeaux (Oberlander: *Zeitschr. f. Urologie*, 1911), in 1853, was the pioneer who attempted to examine the interior of the urethra through an endoscopic tube. His was a very crude instrument in which the source of light was from a lamp, the rays of light being thrown into the urethra with a plane mirror. Greenfeld, in the early seventies, reflected the rays from a head mirror. Casper, Otis, Fenwick and Posner made various modifications. Wyndham Powell made use of the aero-urethroscope and while under air distension could perform minor surgical operations in the urethra. In 1877, Oberlander, working with Nitze, the father of the cystoscope, first successfully made use of the electric current for lighting the interior of the urethra, and did it by means of a platinum loop. To Valentine of New York we are indebted for the first practical endoscopic lamp. Until 1894 the straight tube was used for examination of the posterior as well as the anterior urethra; Lowenhardt, in that year, constructing an instrument with the posterior urethral curve, the examination being made without dilatation either with air or with water. Goldschmidt, in 1906, and Wossidlo, in 1907, made the epoch making discovery in posterior urethroscopic work. Their instruments allow of examination of the posterior urethra either under water or air dilatation and that of Wossidlo particularly allows of therapeutic applications to the posterior urethra and of minor surgical operations. Shortly before his death Goldschmidt constructed a very ingenious but rather too complicated instrument for cutting and cautery operations in the posterior urethra. It was particularly of use where the obstruction to the outflow of urine was due to a hypertrophied middle lobe, a few linear cauterizations judiciously applied causing a great fall in the amount of residual urine.

I will very briefly mention a few of the anatomical peculiarities of the male urethra. During physiological rest the walls are normally in apposition, but owing to its structure the urethra is very dilatable. The narrowest portion is the meatus. A short distance behind is a sudden widening, the fossa navicularis. This becomes suddenly narrowed into the pars cavernosa, which

is in the form of a cone, reaching its widest diameter in the bulb, which is dilatable to 45 or 50 Charriers. The membranous portion is rather rigid and not so dilatable. The pars prostatica is normally dilatable to 35 to 45. The urethra is normally thrown into long folds varying from four or six in the anterior cavernous portion to eight or twelve in the bulbous portion. The transverse folds are not so many in number. The upper wall of the pars cavernosa is studded with 15 to 20 openings of the Morgagnian crypts, of varying depths, whose openings point towards the glans penis. The valve of Guerin, just behind the fossa navicularis, may be looked upon as a large crypt whose depth may reach as much as one-quarter inch. It may and often does interfere with the introduction of a catheter. Into these crypts empty Littré's glands, troublesome factors in chronic gonorrhoea. They may be quite superficial or extend deep into the cavernous bodies of the penis.

The posterior urethra presents its most important structures, contrary to the anterior, on its lower wall. The colliculus seminalis is an eminence about one-eighth inch high, on a fold of mucous membrane, the continuation of the trigone of the bladder. On its surface the opening of the utriculus and ejaculatory ducts may at times be seen. The posterior urethra is often the seat of many obscure sexual diseases often leading to very grave neurotic and other general changes, which, through the introduction of the urethroscope of Wossidlo and Goldschmidt, we have been able to clear up. Into the prostatic sinuses and the lower floor of the urethra alongside the colliculus empty the prostatic ducts, as also the few scanty glands of Littré and mucous follicles.

We introduce the straight endoscopic tube with its obturator deep into the bulbous portion of the urethra, taking the largest size which can comfortably pass the meatus, but not so large so as to distort the urethral configuration. Normally the walls of the urethra, where they meet beyond the endoscope, form a sort of funnel-shaped depression varying in shape in different portions of the urethra. Its depth and shape are changed in pathological conditions. We carefully note the color of the mucous membrane, which varies from a rather dark, velvety red in the bulb to a sort of yellowish red in the glans penis. This may also vary in different individuals, depending on the blood supply to the part and the hemoglobin content of the blood of



the patient. A normal mucous membrane has a smooth, glistening appearance. We also note carefully the number and character of the longitudinal folds into which the mucous membrane is thrown, and on slowly withdrawing the tube we see the openings of the Morgagnian crypts, small red slit-like openings on the surface of the mucous membrane. The other glands cannot be seen unless pathological, being too minute. Longitudinal stripes are also present in a normal mucosa.

The scope of this paper will not allow me to go very deeply into the pathology of urethral conditions but the mention of a few conditions and the citing of a few cases are in order, first of the anterior urethra. It can well be seen how this complicated structure may be affected in many ways and give rise to but one symptom—the morning drop or gleet of the laity, the chronic anterior urethritis of the profession. There may be painful micturition and usually there are threads of the mucous, purulent or mucopurulent variety. Any of these symptoms may be caused by any one of many urethral conditions, which only the urethroscope will clear up and allow of intelligent interpretation and treatment.

Let us first mention the soft infiltration which is the preliminary stage of stricture when the inflammatory reaction is at its height, before connective tissue has invaded the area and caused a contraction (a stricture) at that point. The mucous membrane is swollen and may bulge into the urethroscope; it is highly glistening, its color a deeper red than normal; the folds are coarser and decreased in number and the central aperture is irregularly distorted and usually smaller than normal. In the later stage the mucous membrane has lost its glistening appearance, owing to the cylindrical cells being replaced by a stratified squamous epithelium; its folds are much coarser, fewer in number, or may disappear altogether; the central aperture is gaping; and whereas the walls in a normal urethra are in apposition just beyond the end of the endoscope, in stricture they gape and form a sort of long funnel-shaped tube. The first and second stages of stricture may and usually do give rise to identically the same symptoms although pathologically and endoscopically they are diametrically opposite. With the endoscope one can easily make the differential diagnosis.

Erosions are found particularly in the lower wall and deep down in the bulbous portion. Slight burning during micturition,

pus and threads in the first glass, are the symptoms. Then too, the gonococcus shows a predilection for the crypts of Morgagni and may lie hidden there for a long time, often dormant, just waiting its opportunity to stir up trouble. When inflamed the crypts are surrounded by a halo of redness usually elevated above the surface of the mucous membrane and pus or cell detritus may be seen discharging from their openings. This condition, especially when giving rise to no symptoms, is often the cause of postmarital infection, the gonococcus apparently waiting for such a thing as a coitus to stir it into activity again.

The openings of the glands of Littré are too minute to be seen when normal, but when filled with inflammatory products they can be recognized by the fact that they always occur in groups of three or four and usually near a Morgagnian crypt. Granulation tissue can often be found, particularly in the bulbous urethra, and may give rise to the same symptoms as above mentioned. The mucous follicles, which often have no ducts, and the few ductless glands of Littré, when inflamed, often cause a large rounded prominence which protrudes into the lumen of the urethroscope. Papilloma and adenoma are not infrequently present. Diverticula of the urethra are often congenital, but may be acquired, forming behind a stricture owing to pressure of the urine, or being due to faulty instrumentation. They may often be the cause of a persistent discharge which can only be cured by thorough treatment to the part with the aid of the endoscope.

Injuries to the mucous membrane with acids or alkalis or strong injections show a generalized, glassy edema, with here and there slight erosions and hemorrhagic spots.

Traumatic strictures usually show the urethra normal up to the affected portion. At the point of stricture there is complete alteration of the lumen of the urethra. Beyond the stricture, when it is possible to pass the same, one finds a highly congested mucosa, traversed here and there by many bands of scar tissue. As traumatic stricture usually occurs after falls astride something, it is most often found in the membranous urethra and is usually of considerable extent. In difficult stricture cases the endoscope may often aid in finding the opening and in this way introducing filiform sounds, or it may help in locating the internal opening of a fistula.

Owing to the intimate connections of the posterior urethra

and particularly the prostate and colliculus with the sympathetic nervous system and through it with the various organs of the body, the symptom complex of posterior urethral pathology is very varied. Its chief local symptoms are painful and frequent micturition, tickling in the posterior urethra, threads in the urine, often a mucoid discharge in the morning and terminal hematuria and terminal dysuria. Many of the pains of posterior urethritis are referred down the legs, to the back, and many a sufferer from urethritis has been mistakenly treated for rectal or allied conditions to no avail.

In recent years a great deal of stress has been laid upon the connection between posterior urethritis, particularly prostatitis, and colliculitis with sexual neurasthenia, which in many instances has been cleared up by application through the endoscope to the colliculus.

Although gonorrhoea is no doubt the chief etiological factor in colliculitis, many other conditions enter into it. First of these is masturbation. Coitus interruptus and sexual excitement without gratification are factors. An inflamed colliculus is highly reddened and usually considerably enlarged. It looks large, juicy and irregular, often like a red raspberry, bleeding easily. Under irrigation it may appear tattered and torn. Villous-like translucent bodies may be floating in the irrigating fluid; these may be either epithelial shreds or papillomata and may vary from very few to many in number. These conditions, particularly papillomata, may give rise to spermatorrhea, premature ejaculation, terminal hematuria and dysuria. We have seen these conditions clear up under applications of 20 per cent silver nitrate to the colliculus after drying the urethra.

The posterior urethra itself when inflamed, from whatever cause, will show characteristic changes. It appears thickened, congested, thrown into folds, leathery.

The sphincter internus, normally smooth except for a little notch on its upper surface, usually shows a change in posterior urethritis. It may be thrown into irregular folds or may be covered with papillary excrescences which give rise to the usual symptoms of posterior urethritis. Now and then, when these are large, they may interfere mechanically with emptying of the bladder. Only recently while examining a patient with a posterior urethritis and prostatitis I could see the pus issuing from one of the prostatic ducts.

In cases of retention of urine due to middle lobe hypertrophy of the prostate, the *barriere* of the French, we need not subject the patient to the dangers of a prostatectomy. A few linear cauterizations, rather longer than deep, through the urethroscope may be painlessly and quickly done. The pocket becomes shallower, the retention drops from 400 or 500 ccm, sometimes to 150 or 50 ccm, and in some favorable cases even to zero.

I have purposely not said much about the therapeutics of chronic urethritis. That is not necessary. The diagnosis made, treatment is easy. If one can recognize the pathological condition, the treatment can easily be deduced from the findings. The therapeutic aids need not be legion if judiciously applied. I think the old dictum, that the more drugs for a disease, the less we know about it, will not much longer apply to chronic gonorrhoea. The crucial test in urethral therapeutics will not be the multiplicity of drugs and mechanical appliances, but rather an intelligent application of the few at hand. A dab of silver here, electrolysis into a Morgagnian crypt or paraurethral abscess; a cautery there; now and then the irrigating dilator; that is all.

It is in the power of the urologist of today to save so much of the suffering of womankind. It seems to me that, in justice to ourselves and our posterity, old gonorrhoeics who wish to marry should be subjected not only to a microscopic but also to a urethroscopic examination and to a cultural examination of the expressed products of the urethra and all its adnexa. The prospective bridegroom should be given the consent of the physician to marry only after the urethroscope shows a perfectly normal urethra, regardless of the microscopic examination when that is negative.

All patients should be examined with the urethroscope several weeks after apparent cure, and only after the acute symptoms have subsided. No patient with a chronic urethral discharge should be accepted for treatment without first making an endoscopic examination of the entire urethra. Such a course will often save us a great deal of embarrassment—it will not drive the patients from our doors to those of the advertising quack. I believe the time has come when the urologist can no more spare the urethroscope, than the surgeon his X-ray, or the rhinologist his various means of illuminating his field of practice.

## Cholecystectomy versus Cholecystostomy

By GEORGE W. CRILE, M. D., Cleveland

In reviewing operations on the biliary tract performed at the Lakeside Hospital and those performed by my associates, Dr. F. E. Bunts and Dr. W. E. Lower, we find that cholecystostomy presents rather too frequently a history like the following: For a time the wound remains quiescent, then there is some fever and pain—the old familiar pain—associated with a sense of pressure and burning at the scar, which reddens, swells, becomes tender, raised, and after several days by opening allows the escape of mucopus, perhaps bile. Immediately the symptoms disappear, and after a short period of drainage, the opening closes. After an indefinite period this cycle repeats itself. It does not satisfy or content the victim of this cyclic gall-bladder to assure him that this is a safety valve, that no possible danger attends it, and that some day it may get well. He replies that he suffers keenly, that his work is broken into, that he is handicapped and wishes to be rid of the trouble. This means cholecystectomy, which uniformly gives relief.

Such cases present to us definite clinical problems: Can it be determined at the time of operation whether a given case will eventuate in this malevolent cycle? Is cholecystectomy followed by any noxious after-effects? Will the mortality rate of cholecystectomy be greater than that of cholecystostomy in the cases that will be followed by the cycle of cholecystitis, eruption, quiescence? From the local conditions one can with considerable accuracy forecast the clinical behavior of the gall-bladder and the cystic duct. This prediction, however, is subject to modification on two principal accounts, the technique of the operation, and the after-care.

### Conditions Which Point to the Cholecystitis Obstruction Cycle

If the mucous membrane of the gall-bladder is gangrenous; if there is a stone embedded by ulceration in the cystic duct; if the wall of the gall-bladder is thickened by scar tissue as a reaction to infection, and if there is no bile in the gall-bladder;—these conditions usually are followed by recurrent obstruction and infection. On the other hand, if the gall-bladder has approximately normal walls, and if the cystic duct is approximately

normal, then no matter what the size or the number of stones, if the operation be performed with gentle manipulation, so as to avoid any unnecessary trauma, there will be no postoperative pathologic cycle. Too much stress cannot be laid upon the necessity of gentle manipulations in the performance of the operation. What would happen to the urethra, if a clumsy hand attempted to guide into the bladder a metal catheter or sound which had become corrugated by age and neglect? Or what would be the result of forcibly stuffing rough gauze into the urethra, so that copious bleeding would be caused. The urethra would swell, become infected, obstructed, and later, perhaps, strictured. The base of the gall-bladder and the cystic duct resent no less the bruising and wounding of the mucous membrane by gauze or by instruments. Following such needless injury there may be occlusion by stricture, for the normal cystic duct is very small and is easily closed by stricture. Finesse can accomplish a more certain exploration and a more difficult extraction than can rough manipulation.

### The Comparative Risk of Cholecystectomy and Cholecystostomy

In the cases in which cholecystectomy is indicated the pathologic condition of the gall-bladder would make cholecystectomy safer than cholecystostomy, as the former obviates the necessity for prolonged drainage and limits the extent of infection, especially of infection of the incised wall. The mortality of cholecystectomy depends also on the technique. The gall-bladder should be exposed by an ample wound, so that there is free access to its base; the freeing and separation of tissue should be made by sharp dissection, care being taken not to cut into the liver, that bleeding and infection in that organ may be avoided. The entire gall-bladder should be freed from its attachment, so that ample opportunity may be given for determining the exact place where the gall-bladder ends and the cystic duct begins, this being the point at which the division should be made. This technique results in but little reaction.

It is well to emphasize further the necessity of most careful determination of the exact point at which the division should be made between the gall-bladder and the cystic duct. If the division be made too high, so that even a little part of the gall-bladder is left, there may result, as I have seen, the formation

of a diminutive gall-bladder, with distinct cholecystitis, accompanied by pus formation and the formation of small stones. If, on the other hand, the cystic duct be divided so near its junction with the common duct that the lumen of the latter may be first narrowed by the pressure of the ligature, then totally occluded by swelling, this occlusion usually is relieved by the subsidence of the swelling. That there may be a correct division, therefore, it is essential to have ample room for work, and to maintain a clear field.

In cases showing chronic infection without febrile reaction, the risk of cholecystectomy is less than that of cholecystostomy. In cases of acute cholecystitis with protective adhesions, however, in which the cystic duct is obstructed, cholecystectomy will give a higher mortality than will mere drainage of the gall-bladder, for the reason that during the excision of the viscus, even with the most careful technique, it is necessary to traumatize the surrounding tissues to such an extent that the local immunity of the tissues is impaired. In such cases it is probably wiser merely to drain the gall-bladder, interfering with the local tissues as little as possible. Later, if necessary, the gall-bladder may be excised.

The clinical results of cholecystectomy in many cases of pathologic gall-bladder are clinically as much better than cholecystostomy as nephrectomy of a pus-riddled kidney is better than a nephrostomy. The convalescence after cholecystectomy is usually as uneventful as is convalescence from a salpingectomy for chronic suppuration. I have never seen any adverse clinical results following excision of the gall-bladder. It has been argued that the surgeon would be at a great disadvantage should there later be a necessity of operating for stone in the common duct. To this objection one may reply that the common duct occupies a fixed position with definite landmarks, and if a bloodless anatomical field is maintained by a sharp dissection, the duct is easily found, even though it be buried as deeply as possible under overlying adherent organs.

### Conclusions

From the evidence of my own cases I draw the following conclusions:

(1) Considering all the consequences of infection, cholecystectomy in the type of cases indicated shows a morbidity and

a mortality lower than cholecystostomy. In these cases the clinical results of cholecystectomy are good; while in unsuitable cases, cholecystostomy is followed by recurrent cholecystitis.

(2) I have seen no adverse effects from cholecystectomy, provided that the division is made at the beginning of the cystic duct; that no gall-bladder tissue is left; and that the division does not at all encroach on the common duct. This technique can be readily carried out.

(3) If acute infection be present, then in most cases cholecystostomy should be first performed, followed if required by a later cholecystectomy.

(4) Finally, if the gall-bladder and the cystic duct are approximately normal, then the gall-bladder is left, cholecystostomy being the operation of choice. If the gall-bladder is thick, contains much scar tissue, is shrunken, shows chronic infection; if the musculature is much impaired; if the cystic duct is partially or completely strictured; or if a stone is impacted in the duct; then cholecystectomy is made.

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**Heat Exhaustion and Sunstroke.**—At this season the differentiation between heat-exhaustion and sunstroke is most important since the treatment differs radically and a mistake might be serious. To ice the body of a heat-exhausted patient would almost assure a fatal issue, while, on the other hand, no one would be likely to give a sunstroke victim a hot bath. Heat-exhaustion comes from continual exposure to high temperatures while at hard and exhausting labor. A cool and clammy skin, probably subnormal temperature, and small and rapid pulse are characteristic; the end of a hot wave is likely to bring many such cases. Ammonia, strychnin, rest and a bath at least tepid are indicated, alcohol being avoided. Sunstroke, heatstroke or thermic fever comes from exposure to the sun or to intense heat, especially in one predisposed by fatigue, indigestion, previous illness or alcoholism or excesses such as are stupidly indulged in during hot weather. Those who have once suffered thermic fever are especially prone to recurrence. The victim may fall unconscious and die at once or after a few hours of coma, dyspnea and heart weakness. In other cases perspiration ceases, and there are headache, dizziness, nausea, indistinct vision, flushed face, dry and hot skin, and muscular relaxation. In addition to these symptoms there may be spasms or convulsions, very high temperature, perhaps to the thermometer's limit, frequent and full pulse, deep or stertorous respirations, and unconsciousness deepening to coma (with Cheyne-Stokes breathing in fatal cases). Here the treatment is cold sponging or bathing in ice-water, enemata of ice-water, ice frictions and the ice-cap. Venesection in some cases may be a life-saving measure, and should not be forgotten.—*J. A. M. A.*



## The Physiology of Sleep\*

By L. W. POTTS

Consideration of sleep from a physiological standpoint demands a physiological definition. Although there is some dissension as to the exact wording of this definition, all seem to agree that sleep is a period of comparative inactivity, needed for the repair of the tissues, which repair cannot be adequately carried on during the *full* activity of the organism. This, like all other definitions of sleep, is inadequate, inasmuch as it explains why sleep is and not what it is; since just what sleep is, is not definitely known. The above conception of the reason for sleep is well upheld by the known fact, that tissues are broken down rapidly by activity and repaired during rest, especially unconscious rest. Although the causation of sleep is not positively known, there are many well formulated theories upon the subject, all of which have some foundation; a few have direct experimental evidence.

The mechano-histological theory, advanced by Stoner and others, sets forth the concept that nervous tissue upon being fatigued contracts and that the fatigued neuron processes are unable to bridge the hiatus between adjacent neurons, thus preventing a carrying on of the functions of the conscious state. In support, the anatomical discontinuity of the nervous elements, together with the inherent elasticity of nervous tissue, are cited. In contradiction, one needs only to remember that within certain limits sleep is controlled by the will, for which control this theory has made no provision.

The French scientist, Devaux, has proposed the osmotic theory of sleep. He considers sleep as due to a concentration of formed blood elements, brought about by the diffusion of the blood-plasma into the interstitial spaces. His supposition is based upon the following observations: (1) The urinary secretions are less copious during rest, indicating less blood fluids. (2) The fall in blood-pressure during sleep may well be accounted for in this way. (3) There is an actual hyperhemoglobinemia during sleep. (4) The well known somnifacients are all dehydrants as well. He cites alcohol, ether and chloroform as examples.

As a hypothesis the foregoing is extremely ingenious, but is

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\*A thesis presented as part of the required work of the Second Year class in physiology in the College of Medicine of Western Reserve University.

essentially lacking in that it does not mention why blood from which some water has been removed should have a greater somnifacient quality than usual. Related to the osmotic theory is one which considers that sleep is due to hyperemia of the brain. There are no facts in support of this view, which, moreover, stands in direct contradiction to the usually accepted belief that sleep is due to anemia of the brain; the so-called anemia theory.

The latter theory is backed by the prime factors, reason and experimental evidence. Simply outlined, it states: (1) That sleep is caused by an anemia of the brain and that when the anemia becomes sufficient seriously to impair the functional activity of the brain, a fall below the threshold of consciousness is the necessary result. (2) That the periodicity of sleep is brought about by a rhythmical loss of tone of the vasomotor center, which is accompanied by vasodilatation and fall in blood-pressure. All is based on the assumption that the cerebral circulation is dependent upon the circulatory conditions elsewhere in the body.

Howell and others have shown experimentally that there is a vasodilatation of the extremities during sleep, manifested by an increase in volume. It is only reasonable to suppose that there is a corresponding vasodilatation elsewhere in the body. As further experimental evidence it is found that ligation of both carotids, which leads to cerebral anemia, is sufficient to cause profound sleep, which is changed to waking on removal of the ligatures. Again, still more conclusive is the evidence presented by Stratton, from observations upon one who had lost a large portion of his frontal bone. During sleep the brain became pale and showed a minimum of intracranial pressure, thus indicating a decreased blood-flow.

Against the anemia theory is the single bit of evidence that those who have lost a great deal of blood show no tendency to sleep, but are characterized by wide-eyed restlessness.

It seems improbable, however, that anemia of the brain, as a result of the *inherent* rhythmic loss of tone of the vasomotor center, is sufficient to explain the cause of sleep. It seems more reasonable to think that this loss of tone is caused by some substance carried in the circulating media of the body, especially since Legéandre and Pieron have proven that when the blood-plasma and cerebrospinal fluids of a dog enforced to insomnia are injected intravenously and into the fourth ventricle of a normal

dog, an intense need of sleep and profound cellular changes are provoked. The injection of the fluids of a normal dog produces no result.

Experimental work on sleep, other than that already mentioned, is surprisingly meager. Some work has been done upon those enforced to insomnia. Patrick and Gilbert have contributed materially to the physiology of sleep by their experiments upon men. Three men were kept awake for ninety hours, during which time the following phenomena were demonstrated: (1) A consistent gain in weight accompanied by a slight loss in strength. (2) A uniform slowing of the pulse. (3) Progressive failure of memory. (4) An inexplicable increase in acuteness of vision.

Experiments along the same line have been performed on animals with the end in view of finding the resultant brain lesions. It was found that chromatolysis was most profound in the pre-frontal region of the cerebral cortex and that animals allowed to recover through sleep show no such chromatolysis. The results of all these experiments seem to warrant the supposition that the grosser tissues of the body may be repaired during conscious rest, but that the cerebral inactivity of unconsciousness—sleep—is needed for the repair of the nervous elements.

In summing up, one needs to be cautious in the conclusions drawn, but all in all it seems most reasonable to think that more energy is used up during the full activity of the organism than can be replaced. That substances, the nature of which is not even hinted at here, are produced in the tissues and are carried in the circulating fluids of the body. That these substances act upon the vasomotor center, causing a loss of tone. That the loss of tone allows cutaneous and visceral vasodilatation, and that this vasodilatation is directly responsible for the cerebral anemia which is manifested by normal unconsciousness—i. e., sleep.

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**Classification of Mesenteric Cysts.**—(1) Serous cysts, unilocular or multilocular, which contain a pale, clear, straw-colored fluid, and arise either from a lymphatic dilatation or from hemorrhages between the layers of the mesentery; (2) chylous cysts, probably the most numerous, either unilocular or multilocular, containing a milky white fluid, and due to a dilatation of some of the lacteals or chyliferous vessels, or possibly to an effusion of chyle into a preexisting cyst, though Dowd classifies them as embryonic in origin; (3) hydatid cysts, which compose a class by themselves and are due to *Taenia echinococcus*; (4) dermoid cysts, undoubtedly embryonic in origin, most likely ovarian, since they are much commoner in women than in men (twenty out of thirty-one), and (5), the sanguineous cyst.—Frazier in *J. A. M. A.*

## The Cause of the First Respiration\*

By H. V. WEIHRAUCH

There is, perhaps, no single event in the life cycle of the individual of more practical or theoretical interest than the first respiration and its causes. The heart of the fetus at birth is functioning normally and is caring adequately for the circulation of the blood. But for the new-born child to enter upon its career as an independent physical being, it is necessary that the lungs should begin the series of continuous rhythmic contractions which shall provide for the aeration of the already circulating blood.

It is well known to students of this day that during intrauterine life aeration of the fetal blood is carried on in the placenta. This fact must indeed serve as the starting point in our discussion relative to the cause of the first respiration. It was Mayan, in 1674, who first recognized the true function when he declared that it served as the fetal lung. It is interesting to note that this view was abandoned for various other hypotheses for practically two centuries. LeClarc and Goeffrey St. Hiliare, for example, held that the liquor amnii served the purpose of respiration by means of the skin of the fetus. As late as 1840, Johannes Müller, one of the chief physiologists of his day, maintained that there was an exchange of plasma from the maternal to the fetal blood, which took the place of respiration. Later the original view of Mayan was accepted and upheld by Schwartz, Griesserow and others; and with the discovery by Zweifel, in 1876, of the spectrum of oxyhemaglobin in the umbilical cord, which disappeared in asphyxia, the question was settled conclusively.

The harmonious control of the muscles that participate in respiration, as it exists in the adult, is the function of a special nerve center, called the respiratory center, situated in the medulla. The mechanism of respiration in the new-born, although it has never functionated, must be identical with that in the adult. The activity of the center in the medulla depends partly upon the condition of its blood supply, especially with regard to the tension of carbon dioxide, and partly on afferent nervous impulses, which come in part from the sensory nerves of the skin. The cause of the first respiration must then be stimulation of the

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*A thesis presented as part of the required work of the Second Year class in physiology of the College of Medicine of Western Reserve University.*

medullary center, either directly through some change in the quality of the blood circulating through it, or indirectly by means of impulses arriving at it through its afferent paths.

After disturbance of the placental circulation, either during labor or following the severing of the umbilical cord, the blood of the fetus or new-born child is temporarily unaerated. There is consequently an increase in the carbon dioxide tension and a decrease in the oxygen tension of the blood, and it has been contended that this increasing venosity of the blood, circulating through the spinal bulb, is in itself sufficient to stimulate the respiratory center directly, thus stirring the respiratory muscles into coordinate activity. But another exciting cause of the first respiration must be thought of. When the child is born, it passes out from the warm amniotic fluid and uterine cavity into the relatively cold atmosphere of the air outside. It is known that thermal changes are capable of stimulating the sensory cutaneous nerves. The afferent impulses thus set up may stimulate the respiratory center.

Various questions have been raised by Leonard Hill and his coworkers as to the exact nature of these factors in determining the onset of respiration. Considering direct stimulation of the center in the medulla, the question arises whether increase in the carbon dioxide tension or decrease in the oxygen tension of the blood circulating through it is the factor which serves to set the respiratory muscles into rhythmic contractions. Does this stimulus become potent only at birth, or has it been present in a weak form during the later period of intrauterine life? In other words, has the fetus throughout intrauterine life been in a state of continued apnea, or have the respiratory muscles been prepared by mild exercises for the function which they are to assume at birth?

It has been proven conclusively that the respiratory center is sensible to the minutest increase in the carbon dioxide tension of the blood. A relatively greater decrease in the oxygen tension is necessary to produce the same effect. We may assume, then, that increase in the carbon dioxide tension, if it does not in itself bring about the first respiration, so lowers the threshold of excitability of the center as to enable it to respond immediately to afferent cutaneous stimuli.

Many observers have protested against the view that the respiratory center, without previous preparation, suddenly as-

sumes its function of sending out rhythmic impulses to the associated muscles. It is said to be contrary to the laws of nature for any vital process to be so inaugurated. Hill suggests that the respiratory center and its associated muscles assume their function gradually. In the trachea and bronchi of the fetus dead in utero, amniotic fluid and lanugo have been found. This is taken as evidence that the fetus has breathed. The medullary center, Hill maintains, may be sensible to any considerable variations in the carbon dioxide or oxygen tension of the blood during the last months of intrauterine life. It is further known that slight disturbances of the placental circulation may occur at this period, thus providing for a variation in the carbon dioxide tension of the fetal blood. The responses to these changes would be very feeble, sufficient only to suck a little mucus or amniotic fluid into the nasopharynx, and then blow it out again. Both these substances would be prevented from penetrating too far by reflex inhibitory movements. Ahlfeld, indeed, has described certain intrauterine movements of the fetus, which were apparently due to contractions of the respiratory muscles and which were felt at the region of the mother's navel. These movements were irregular but rhythmic. On the other hand, to controvert the evidence that the fetus in utero shows respiratory movements is the well known fact that a certain proportion of new-born infants do not breathe for a considerable time after birth. If present at all, the respiratory movements of the fetus are certainly inadequate. This theory, then, would coincide with the well known fact that serious disturbances of the placental circulation will cause death of the fetus from asphyxia.

Most authorities agree that the first cause assigned to account for beginning respiration, namely, stimulation of the medullary center directly by increase in the carbon dioxide tension of the blood, is a potent one. It is upon the part played by cutaneous stimulation that the greatest divergence of opinion exists. Many physiologists and practically all obstetricians maintain that it is to be considered a powerful factor. Prior, indeed, considers it the most important factor of all. Hill, however, declares that the importance of cutaneous stimulation as a cause of the first respiration has been greatly exaggerated. His contentions are supported by an array of seemingly conclusive proof. Investigators have found that children born in the tropics draw their first breath as readily as those born in the arctic regions,

although the thermal stimulus would be much weaker. Also, that a child delivered into a water-bath at the temperature of the mother's body shows no delay in beginning the first respiration. Numerous cases are on record, in which beginning respiration was noticed just as the head of the child was emerging from the genital canal. Cohnheim and Zuntz removed a fetal sheep from the uterus, taking care not to damage the placental circulation. The animal did not breathe, however, until the umbilical cord was tied and severed. Hill's conclusions that cutaneous stimulation is at best merely an accessory factor in causing the first respiration seems to be borne out by the evidence which he cites. However, there is abundant proof from various observers that cutaneous stimulation is an important factor in causing the first respiration. Sharp slapping of the buttocks, for example, is said to be one of the surest means of hastening the delayed first respiration. This, it would seem, is merely artificial exaggeration of the normal thermal stimulus.

Perhaps the safest conclusion which we can draw as to the cause of the first respiration, is that the increasing vensity of the blood circulating through the medulla serves to lower the threshold of excitability of the respiratory center, while cutaneous stimulation is the effective end factor which stirs the thus sensitized medullary center into action.

Accepting the radical views of Prior or Leonard Hill, or a median position between the two, the researches of Zuntz on the oxygen consumption of the fetus throw an interesting light on the probable cause of delayed respiration. The fetus, according to him, consumes only 0.169 gram of oxygen per kilo of body weight as compared to the adult, who needs 14 or 15 grams per kilo. If this be true, the carbon dioxide production of the fetus or new-born child must be small in amount, so that the delay of respiration in the new-born might be due to the relatively long time necessary for the carbon dioxide to accumulate in amount sufficient to affect the respiratory center, the excitability of which is extremely low at birth. Other investigators (Bohr) have challenged the findings of Zuntz, however, and maintain that the oxygen consumption of the fetus is equal to or slightly greater than that of the mother.

**The Toxicity of Methyl and Ethyl Alcohol.**—The close chemical relationship and the similarity in physical properties and behavior of methyl and ethyl alcohol, the two chemical compounds which form the essential ingredients of wood alcohol and grain spirits, respectively, have made it difficult to believe that they could be so distinct and unlike in respect to their toxicity. For this reason we find the question recurring again and again as to whether the undoubted noxious character of wood alcohol is not, after all, associated with some by-product or impurity, rather than the methyl alcohol itself. It is not so long since precisely the same hypothesis was postulated for ethyl alcohol and whisky, and it was maintained that pure alcohol is far less harmful than the cruder distillates that are sold for human consumption. A growing collection of evidence is making it manifest, however, that we cannot neglect the fundamental toxicity of the alcohols themselves which form the chief and physiologically most significant ingredient of the fluids in which they enter into commerce. Langgaard of Berlin has contributed new demonstrations of certain significant facts in relation to the two alcohols. In small, frequently repeated doses methyl alcohol is far more poisonous than is ethyl alcohol. A single large dose of the latter may, however, provoke a more toxic manifestation than does methyl alcohol. It would appear as if methyl alcohol, administered in small repeated quantities, brings about a cumulative effect. In explanation it has been suggested that the alcohol tends to be retained in parts of the central nervous system, there to be slowly oxidized to formic acid. All drugs with cumulative manifestations should be the objects of unusual solicitude in respect to the hidden dangers which they harbor.—*J. A. M. A.*

**Property versus Life.**—To the legal mind, apparently, the rights of property have always seemed of more importance than human life. For hundreds of years it was possible for a man brutally to maltreat his child with less legal risk than if he had poached a hare. Gradually human life became more valuable; but even today it fails to receive the protection that is accorded to property. It is no uncommon thing to find reported in British newspapers cases in which a drunken navvy has kicked and otherwise abused his wife, to receive no greater punishment at the hands of the law than a paltry fine; while the unhappy wight who, driven by hunger, steals a loaf, is sent to prison. Nor do we need to go oversea to find such instances of the worship of property. An excellent illustration of the workings of the legal mind in problems of this kind is to be found in a study of ten Notices of Judgment issued by the United States Department of Agriculture and giving in detail the account of ten violations of the Food and Drugs Act. These ten cases deal with charges brought against the firm of Hawley & Hoops, New York, who are in the candy business. Hawley & Hoops sell what is known as "penny goods"; that is, the kind of candy purchased by the little tot who has been given a penny to spend. Ten different specimens of Hawley & Hoops' penny goods were seized by the officials of the Bureau of Chemistry and analyzed. All of them were found to be adulterated with arsenic and most of them contained shellac. All of them were being sold as chocolate candies yet the officers reported that some did not even have the predominating flavor of chocolate. In every case the firm pleaded guilty. In nine out of the ten cases no penalty was imposed, the court suspending judgment. In the tenth case a fine of \$50 was imposed. The case in which a fine was imposed was the one, and the only one, in which the company had not merely sold a poisonous product to little children, but had misstated the net weight of the package in which the arsenic-containing candies came! Selling to little children as chocolate candies a mixture containing arsenic and shellac but not containing even the predominating flavor of chocolate is, apparently, in the eyes of the law, a trivial offense. But selling to a dealer a package marked five pounds that really contained only four pounds fourteen and five-eighths ounces, that is a crime! —*J. A. M. A.*



# The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and  
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

THE OFFICIAL ORGAN OF THE ACADEMY OF MEDICINE OF CLEVELAND

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BUSINESS MANAGER—MISS RUTH STONE

2318 PROSPECT AVENUE

Entered March 7, 1902, as Second-Class Matter, Post-Office at Cleveland, Ohio, under  
Act of Congress of March 3, 1879.

Organized January 20, 1902

Capital Stock \$6,000

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## EDITORIAL

### The Health Department under the New Cleveland Charter

The great majority of Cleveland physicians are in favor of clean municipal government and are in harmony with every movement toward such an end. The medical profession was recognized by representation upon the Charter Commission and as a group of intelligent citizens it looks forward most hopefully to the operation of the municipality under the charter which that commission prepared. Even in regard to the administration of public health under the charter hopefulness probably predominates, although the intelligent physician may be permitted some misgivings as to the future.

Against the advice of those most competent to advise, the Board of Health was abolished. It was not to be expected that the commission would do otherwise, since the trend of today seems to be toward concentration of responsibility in a single head. If boards have gone out of fashion, one can understand why the Board of Health had to go. The outcome of the experiment will be worth watching. The one point upon which practically all sanitarians are agreed is that the making of health regulations, with the force of ordinances, should not be in the hands of an elected council. Whatever may be the individual opinions as to the organization and administration of municipal health departments, experts are not enthusiastic as to the public health legislation enacted by a group of elected untrained councilmen.

Cleveland may well be proud of what has been accomplished by its health department. The progress made in the past three or four years is little short of remarkable, when the forlorn beginnings and the present relatively small appropriations are borne in mind. What has been done was not really begun in that period during which the city did not have a Board of Health, nor was it begun in that earlier period when the city *did* have such a board, but one composed of members appointed by a mayor who frankly admitted that public health matters did not interest him. What has been accomplished has been the result very largely of the help given the administrative officers of the department through regulations made by a board composed of the proper sort of individuals.

Present regulations will probably continue active unless repealed by the council. If they are permitted to stand, if they are amplified and improved by the adoption of a proper health code, if the executive and administrative work which has been built up under those regulations is not torn down, then the future of public health under the new charter is assured. If, however, present regulations are weakened by the pressure brought to bear upon his councilman by John Smith, a dairyman of the first ward; and upon *his* councilman by George Jones, who has his own ideas as to the kind of foodstuffs he shall sell in the eighth ward; and upon *his* councilman by William Brown, whose opinions upon personal liberty are such as to make him prefer a primitive backyard privy in the thirteenth ward to a modern

watercloset; then the outlook for the future will be gloomy and Cleveland will not be the pleasantest sort of a living place.

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### Department of Agriculture Advises that Milk be Pasteurized at Low Temperatures

In order to determine the best way of pasteurizing milk so as to kill the disease germs and yet not give the milk a cooked flavor or lessen its nutritive value, the Department of Agriculture, through its Dairy Division, has been conducting a series of experiments, treating milk at different temperatures and for different lengths of time. According to the report on these experiments in Bulletin 166 of the Bureau of Animal Industry, when milk is pasteurized at 145° F for thirty minutes the chemical changes are so slight that it is unlikely that the protein (muscle building element) or the phosphates of lime and magnesia are rendered less digestible than they are in raw milk.

Moreover, from a bacteriological standpoint, pasteurizing at low temperatures is found to be more satisfactory than pasteurizing at high temperatures. According to Bulletins 126 and 161, where low temperatures are used the majority of bacteria that survive are lactic acid organisms which play an important part in the normal souring of milk. When milk is efficiently pasteurized at high temperatures, the bacteria which survive are largely of the putrefactive kinds, and milk so treated if kept for any length of time has a tendency to rot instead of sour. From the standpoint of economy, the technologist of the Dairy Division finds that pasteurizing at low temperatures calls for less heat. It is found that it takes about 23½ per cent less heat to raise milk to the temperature of 145° F than to a temperature of 165° F. A similar gain is a saving of the ice needed, because it will require 23½ per cent more refrigeration to cool milk to the shipping point when it is pasteurized at the higher temperature. The Department, therefore, recommends that "when market milk is pasteurized it should be heated to about 145° F and held at that temperature for 30 minutes."

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### The Golden Eggs That the Goose Failed to Lay

Patients treated by Dr. Friedmann last spring are beginning to die. Friedmann may never return to America, as he threatened, but if he does, it's safe to say that much of his advertising will be C. O. D.

The above little editorial paragraph, taken alone as it stands, may appear only flippant and facetious. But the editorial scis-

sors clipped it most eagerly from the *Cleveland Press*. To most of our readers the thickening of the plot will begin to be apparent. Facetiousness gives way to sadness—mirth and mockery are replaced by misery and malediction—and Tragedy treads heavily upon the heels of Comedy. *The Press* was one of that group of American newspapers which boasted of the “scoop” that had been perpetrated when a whole first page of virginal white paper and much undefiled black ink were combined to make the first announcement of the “cure.” That the C. O. D. label was not attached to that first advertisement must be the cause of much gnashing of editorial teeth. That is what is so sad, so tragic. The cost of production goes merrily on, but so many dollars are irretrievably lost. Editors and special correspondents, who, being “from Missouri,” are particularly adapted for announcing French cancer cures and German consumption cures, must still be paid—and Friedrich Franz got it all for nothing. Our admiration for the latter gentleman grows daily by leaps and bounds and perpendicular jumps. Of course it will never happen again—the burned child dreads the fire and the “stung” newspaper needs the money. It won’t happen again—until another newspaper, or the same one, gets ready to outdo its rivals by making a sensational story out of what it takes to be the facts in a matter of which it knows nothing.

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### Apologies and Promises

Some weeks ago there appeared in the *Sunday Plain Dealer* an article in which Dr. James C. Wood was pictured as the hero of another’s “vision.” The story itself was not sensational, as that term is understood; it was merely crude and foolish, with little either of value or of interest. Doctor Wood very properly objected; the resulting correspondence he has given to THE JOURNAL. It is not necessary to print the entire correspondence. Doctor Wood’s letters are such as any reputable physician would write under the circumstances. The replies of the Sunday editor of the *Plain Dealer* contain some points of interest. As a very frank expression of personal regret the following extract is quite admirable:

I am genuinely sorry that our little story \* \* \* caused you any embarrassment. \* \* \* I realized that anything definitely connecting you with the article would be misconstrued. As it was, I figured your part in it as purely incidental. Certainly you had nothing to do with either the vision or the story, and I thought the thing perfectly harmless. I imagine that the philosophical view to take of the matter is that an indi-

vidual has no means of preventing another individual from seeing him in a vision and, subsequently, talking about it. This, however, does not lessen the regret I feel in having put you to any annoyance. I can see now how I could have handled the page differently, and I certainly would have had I known of its trouble-making possibilities. I can see, also, a flaw in my philosophical statement above; that is, if a person sees a surgeon in a vision, although that surgeon can not help it, a newspaper does not necessarily have to print the thing.

The attitude taken in the above is such as to lead to the belief that some day newspapermen will attain an understanding of the medical profession's aversion to publicity. The unfortunate thing is that, however genuinely sorry an editor may be for the annoyance which he has caused, there is often no adequate way in which public acknowledgment of that regret can be made. An explanatory printed article would seem, at first glance, to be the solution. But such an article would not be news, the printing of which should be a newspaper's real excuse for being, and it might be very apt to lead to a belief, upon the part of suspicious minded individuals, that the retraction or apology was only another way of seeking further notoriety. From another letter of the Sunday editor of the *Plain Dealer* we take the following, the italics being ours:

For the *Plain Dealer* to take up the cudgel and preach to the medical profession that it be true to its ethics is also wrong—an affront to that great body of men. Because physicians really are ethical. We have, of late, cut down our medical advertising to practically nothing, and *more and more and more of it will go until some day there will be none*, as there should be. In the meantime, however, the big host of ethical members of the medical profession need not, I am sure, worry over the incidental mention of their names in newspaper articles which do not concern their actual practise.

Such a correspondence may not be sufficient reparation for an injury which has been done. It does, however, indicate an understanding and state a policy which together ought to lead to better things in the future. If, as is promised, the *Plain Dealer* shall some day omit medical advertising altogether; and if its directing heads shall continue to maintain so very fair an attitude as this correspondence indicates; then there will be added one more to the very select honor roll of American newspapers.

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### The Medical Laureate

It does us all good to see a poet laureate referred to as Doctor Bridges, even if he has not done any doctoring, except of letters, in the past thirty years; and even if his poetry, of which it has been said "only the most sensitive and intuitive could adequately appraise and interpret it," is unknown to most of us. We have

the greatest admiration for him who, in spite of or because of medical training that he is so thoroughly scholarly; that a knowledge of the new poet laureate of England it is because of his medical training that he is thoroughly scholarly; that a knowledge of human biology, which is what medicine essentially is or should be, has been of some help in the wooing of the poetic muse.

Of the new laureate's poetry, William Stanley Braithwaite has written as follows in the *Boston Transcript*:

Since the deaths of Swinburne and Meredith, occurring in the same year, and but a few weeks apart, no English poet had a juster claim, despite his obscurity, and by every reason of his indisputable achievement, than Robert Bridges to be recognized as foremost among living English poets. Mr. Asquith, in appointing this retiring Oxford poet to the laureatship, made a choice, regarded from a purely poetic standard, that seems inevitable. The English-speaking world can impute no motive outside of the art itself to the Prime Minister for his appointment. No candidate for the post, at this time, ever wrote with a more absolute disregard of fitness for the function that the office carries. From a busy professional and humane career in London he passed, nearly thirty years ago, to the quiet seclusion of Oxford, where he has lived since, devoting himself to poetry and music. His life clothed in privacy, his poems went into the world under the same sheltering influence in their original editions. \* \* \* Limiting himself, as in his verse, to a moderation which is an infinite series of rejections, he becomes the wisest of living poets, as he is artistically the most faultless. He has left by the way all the fine and colored and fantastic and splendid things which others have done their utmost to attain, and he has put into his poetry the peace and not the energies of life, the wisdom and not the fever of love, the silences rather than the voices of nature.

Of the man himself, Joyce Kilmer has given us the following information in the *New York Times*:

He comes of a distinguished English family, being the son of John Bridges, of St. Nicholas and Walmer, in Kent, and a kinsman of the Rev. Thomas Edward Bridges, D. D., who was from 1823 to 1843 President of Corpus Christi College, Oxford. At Eton, and later at Oxford, Mr. Bridges was noted for his scholarship, but he found time to distinguish himself in athletics. He was an enthusiastic cricketer and oarsman. In 1867 he was placed in the second class in the Final School of Litterae Humaniores. After leaving the university he spent a number of years in foreign travel, familiarizing himself, to an extent unusual for an Englishman, with life on the Continent and in the Far East.

On his return to London he became a student of medicine at St. Bartholomew's Hospital, receiving, in due course, the degree of M. B. at Oxford. He then began the practice of his profession, being regularly attached to the staff of St. Bartholomew's Hospital and of the Children's Hospital in Great Ormonde street. Retiring from practice in 1882, he married and left London for his beautiful rural estate at Yattendon, in Berkshire. Since that time he has devoted himself exclusively to literature, and particularly to poetry.

And finally, as what has been esteemed an example of the highest type of our retired colleague's lyric art, we give the following verses, entitled "When Death to Either Shall Come":

When Death to either shall come,—  
 I pray it be first to me,—  
 Be happy as ever at home,  
 If so, as I wish, it be.

Possess thy heart, my own,  
 And sing to the child on thy knee,  
 Or read to thyself alone  
 The songs that I made for thee.

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**Open Trail.**—Is there perhaps a note of discouragement in the New York *World's* complaint that its commission of German scientists has been obliged to disband because of the difficulty of obtaining material upon which to base a judgment regarding the Friedmann consumption "cure"? "Doctors Regret Friedmann's Act" declares the balked newspaper investigator in its headlines. "They Feel Science Loses Through Blocking of the *World's* Inquiry." Let not our enterprising contemporary be disheartened. It can now effectually earn the gratitude of the public by turning its powerful searchlight upon its immediate environment. Claims are repeatedly made in its own columns more definite and comprehensive than the discredited Friedmann ever advanced. Nothing could be more appropriate than that it should appoint an American scientific commission to consider the statements of Dr. Anderson, the "X-Light Specialist," and of Eckman's Alterative, among the many claims for which is the following: "A medicine made for the cure of tuberculosis. It has cured this disease again and again." The *World* has won an enviable and deserved reputation for the probity, courage, and incorruptibility of its news and editorial policy. Will it, now that it has committed itself to the investigation of consumption "cures," confess, by the implicit admission of silence regarding the treatments exploited in its own pages, to laxity, cowardice, and venality in its attitude toward the advertisements from which it takes money?—*Collier's*.

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**Millions—Mosquitoes and Malaria.**—Six months ago we wrote of Greenwich, Conn., its wealth in money and mosquitoes, and its 900 cases of malaria last season, every one of them due to the bite of The Lady Anopheline. A striking contrast may be drawn between Greenwich and the South Carolina town of Hartsville. Monetary statistics are not at hand, but we imagine that Hartsville boasts few millionaires, perhaps none at all; possibly Hartsville would be as much staggered by the appearance of a millionaire "in its midst" as it would by that of the dodo or the *Ornithorhynchus paradoxus*. But manifestly this Southern community has the grit and resourcefulness which make very fair substitutes for wealth. Its Health Board has from time to time distributed among all its citizens circulars telling what must be done to exterminate mosquitoes and to render the community malaria free. Then its authorities have surveyed the entire city, and in a neighborly spirit (the good of all being the object sought) have supervised the breeding grounds—especially back yards. Last year Dr. W. Egleston, the Health Commissioner, reported malaria, though prevalent a decade ago, to have become locally almost negligible. And Hartsville folk spend their summer evenings on screenless porches without the least provocation to scratch themselves. The contrast of Greenwich and Hartsville conditions has nation-wide interest, for there are many American communities now malaria rife which need not find mosquito extermination an insuperable task. Large sums of money are not needed; only determination, rational action, and the right civic spirit. The pecuniary expenditure should be but a small fraction of what it costs to pay doctors' bills and to make up for the losses due to this disease when it is once established—to say nothing of the business depression in a community which gets the reputation of being "malarial."—*Collier's*.

## Department of Therapeutics

Conducted by J. B. McGEE, M. D.

**Ox-Bile:** In the *American Journal of the Medical Sciences* for June, Francis W. Palfrey reports on the administration of ox-bile in the treatment of hyperacidity and of gastric and duodenal ulcer. The value of internal therapeutic measures is so difficult of conclusive proof that he presents his suggestions with some hesitation. Yet in view of the strength of the physiological and pharmacological facts upon which the theoretical considerations have been based and from the practical results obtained in some fifty cases, he feels that the matter should be published that its worth may be tested by others. In common clinical experience, the most frequent form of dyspepsia is that characterized by "sour stomach" and "heartburn" or pain after eating. These cases are commonly regarded as those of hyperacidity, and while many do show hyperacidity, in others the stomach contents are not abnormal. Thus in routine practice an uncertain diagnosis is made of hyperacidity or ulcer. In treatment the patient is given directions and diet according to the physician's opinions, and an alkali for palliation as necessary; but in many cases no appreciable improvement results. For the proper functioning of the pylorus it is necessary to have a proper balance between acid secretion on the part of the stomach and acid neutralizing power in the duodenum. The neutralization in the duodenum of acid contents received from the stomach is effected by the bile, and by the pancreatic juice, as well as by secretion of the duodenal mucosa described by Pilcher. While the amount of the second and third of these cannot be influenced, the flow of bile, as shown by Pfaaf and Balch, can easily be increased by the administration by mouth of ox-bile. The clinical test comprised somewhat over fifty cases, typical of the class formerly considered as hyperacidity, but now, after the teachings of Moynihan and Mayo, under the suspicion of chronic gastric and duodenal ulcer. Their most prominent symptoms were pain and pyrosis following the ingestion of food after a more or less definite interval and relieved temporarily by sodium bicarbonate. In addition to dietetic measures, the ox-bile was given in pills each containing 0.25 gram of dried and pulverized ox-bile, salol coated to conceal the taste and to prevent dissolution in the stomach. Two or three of these pills were given after meals three times a day for a week, after which as a rule the number was reduced. In some instances, where the appetite was not good or where there was reason to suspect that the gastric secretion was not always active, dilute hydrochloric acid and tincture of nux vomica, of each 8 minims, were given in water before meals, and for temporary relief sodium bicarbonate and milk of magnesia. The results were such as to lead him to believe that they could not be explained except by the influence of the bile. In practically all cases followed, the patients showed satisfactory improvement within a few days, and in a week or ten days gave highly favorable reports of their condition. He does not advocate the use of ox-bile as the sole treatment of gastric and duodenal ulcer. It is in cases of dyspepsia of a milder type in which even bed treatment is not considered necessary that the treatment is most clearly supported by its results. In a word, during the past two years dyspeptics of the so-called hyperacidity type, formerly treated with indifferent success, have by the use of salol coated ox-bile pills seemed to obtain relief.

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**Anaphylaxis:** *The Therapeutic Gazette*, in its May number, comments editorially on the prevention of anaphylactic shock. When we consider how many hundreds of thousands of doses of diphtheria antitoxin have been administered within the last fifteen years, the instances in which grave results have accrued, by reason of anaphylaxis, are so few as to be scarcely worth consideration, were it not that in some of these cases the condition was so grave that death resulted. The writer refers to a recent case in which sudden death occurred within a



very few minutes after an injection. In this case the sensitizing of the patient had not been induced by a previous injection but was dependent upon idiosyncrasy, and this idiosyncrasy was apparently part of an asthmatic tendency from which the patient suffered. Several members of his family received immunizing injections without any ill effects whatever, but he was found dead within a very short time after the injection. Even if such cases are exceedingly rare their gravity deserves much careful study, and he can scarcely agree with Vaughan when the latter says that from the practical standpoint anaphylactic shock is the least important of the phenomena of sensitization, nor can he agree with him that it is always an artificially induced condition, since it is found already existing in certain asthmatics and therefore has not, strictly speaking, been artificially induced. To sum the matter up, he thinks it may be stated that in the ordinary individual not asthmatic and not sensitized by the previous use of serum, the danger is so remote that it should never delay the physician's hand a moment in the administration of this valuable remedy in the presence of diphtheria or tetanus. If the physician believes that the patient is unduly sensitive, the subject should be etherized and should receive a hypodermic injection of atropin and simultaneously should receive a very small testing dose (0.1 or 0.2 ccm, Vaughan Jr.). If in the face of these precautions disaster occurs, the physician is not blameworthy, as he has utilized all the protective measures we know to prevent the manifestation of this dreadful result.

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**The Thyroid:** Murray H. Gordon, in the *New York Medical Journal*, considers thyroid medication in children. The hypoplastic types run from one extreme to another. There may be normal mental development with impaired physical growth, and *vice versa*. Demme has reported a great frequency of goiters in the first year of life, 53 out of 643 cases being congenital; these children were nurslings and improved on thyroid medication given to the mothers. Kocher states that 90 per cent of infantile cases can be cured by internal medication. Thyroid administration in mongolian idiocy is not able to affect a permanent cure, as there seems to be in these cases no further development beyond a certain point. This is not really a thyroid disease, though thyroid deficiency may be associated with it. It has been found efficient in enuresis, especially when long continued or occurring in backward children. Middleton believes that very few cases of long standing so-called rheumatoid arthritis exist without some degree of thyroid failure; in those cases in which there is a soft swelling about the joints rather than bony overgrowth, thyroid treatment proved efficacious, due perhaps to the iodin and arsenic contained in the thyroid. The thyroid has long been known as of value in certain skin diseases, as sclerosis neonatorum, ichthyosis, psoriasis, scleroderma, and eczema, while H. Stern reports its successful use in Riggs' disease. As to the method of action of the thyroid, in addition to its physiological action, it acts through the iodin and arsenic it contains. Beebe writes that in his opinion the success is due to improvement in the metabolic condition of these individuals. If we accept the theory that the thyroid furnishes a hormone, that would explain the action of the extract in the different conditions in which success has been reported. The untoward effects of the drug may be mental, gastrointestinal or cardiac, depending on the patient's individuality. Too large a dose or long continued treatment sometimes results in tachycardia, irritability of temper and skin changes akin to those of myxedema. The dose depends on the individual susceptibility, age and body weight apparently having no relation to it. A small dose,  $\frac{1}{8}$  grain gradually increased to 2 or even  $2\frac{1}{2}$  grains, is best.

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**Strychnin:** In the *Critic and Guide* for April, Wm. J. Robinson discusses the treatment of sexual weakness and states as to the use of strychnin, that it is one of the few drugs from which we can

expect positive results. But it is not to be given in a routine way. Its effects must be watched, otherwise it may do harm and not good. In fact, it may even very much aggravate the condition; it may convert impotence of a very mild degree into one of a severe type. Doctor Robinson, was the first, he believes, to call attention to the potentially injurious effects of strychnin in sexual weakness, and very soon after his paper made its appearance he began to receive letters from various parts of the country corroborating his statements. He repeats that strychnin must be administered with watchful caution. For instance, if the patient feels irritable after it, if his spine and legs feel hot, or if the slight pain in the back is aggravated, then it is a signal to discard it. But if we bear in mind the necessity of watching the patient, we can get excellent results from strychnin. Its effect in increasing the erections, their strength and duration is in some cases extremely gratifying. He usually gives it *per os* in doses of 1/30 or 1/20 grain (according to the weight of the patient) three times a day. No results need be expected from smaller doses than 1/30 grain. Sometimes when it is necessary to make at once an impression on the system, he gives it hypodermically, not hesitating to inject as high as 1/12 grain. As to the discussion which salt of strychnin is the best to use, the sulphate, nitrate, valerate, etc., (in some European countries the nitrate is the favorite), he does not take any great stock in it; it is the strychnin, the alkaloidal base, that does the work, and not the acid radical. He often alternates strychnin with the second alkaloid from nux vomica, namely brucin. Brucin is mild in its action and may be given in doses of 1/6 to 1/4 grain three times a day. Give the strychnin for a week or ten days, then stop it altogether for three or four days, and give the brucin for a week, then commence again with the strychnin. Very often the compound syrup of hypophosphites acts more quickly and more beneficially than strychnin alone.

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**Camphor:** In the *Medical Record* for June 7, camphor in the treatment of pneumonia is considered editorially. Pneumonia, called by Osler a self limited disease against which no method of treatment is of any avail, is in the experience of very many able and observant practitioners one of the most amenable to proper treatment, except in the rare cases of massive infection, of all the infectious diseases. Forty years ago, James R. Leaming proclaimed the curability of pneumonia by a massive dose, 20 grains and more, of calomel, an early and empirical application of Ehrlich's theory of *therapia magna sterilisans*. He practiced what he preached, for when he himself was attacked with the disease he took calomel—and recovered. Ten or fifteen years later, Andrew H. Smith and others demonstrated the value of the salicylates and of creosote carbonate in the specific treatment of pneumonia. Some years ago August Seibert published a report of a number of cases of pneumonia treated by hypodermic injections of large doses of camphor, in the form of 20 per cent camphorated oil, and also gave the results of a number of experiments with camphor injections in rabbits previously inoculated with cultures of pneumococci. Leo, of Bonn, states that the experiments thus far made in cases of pneumonia or of pneumococcus infection indicate that camphor has a specific action against pneumonia, and he quotes from Ehrlich to the effect that Böhnke, experimenting on mice in the institute at Frankfort, had succeeded in curing pneumococcus infection by the subcutaneous injection of camphor oil. These observations of Seibert, confirmed by workers in Bonn, Frankfort and St. Petersburg, the favorable results obtained by Wright in the use of mercury succinimide, and the earlier successes with creosote carbonate, the salicylates and calomel should suffice to down the pessimism which so long dominated the therapeutics of pneumonia and other infectious diseases, but which is now disappearing along with the dying school of therapeutic nihilists.

**Digestive Tract:** Boardman Reed, in the June number of the *Medical Council*, considers two neglected measures in the treatment of disease in the digestive tract and organs of circulation. Diet and exercise in most of the gastrointestinal ailments and in numerous other diseases have more to do with success or failure than all our drugs, indispensable as some of these often are. In the various affections associated with an excessive secretion of hydrochloric acid in the gastric juice—ulcer of the stomach or duodenum and hyperchlorhydria—no medicine or other treatment succeeds until the diet has been vigorously restricted, and acids as well as all irritating condiments wholly excluded. In the case of ulcer, as most doctors know, it is best to stop for a week or two at least, all food by the mouth, letting the patient meanwhile either fast or receive nutritive enemata; and when the patients are not vigorous they should remain in bed till mouth feeding can be resumed. And these measures will often in the earlier stages of ulcer cure without even the usual full doses of sodium carbonate or magnesium carbonate having been given. In constipation, which, like the poor, we have always with us, the routine method of putting the patient upon either a daily laxative or enema is so harmful as to be almost criminal. A radical curative treatment should be instituted at once, consisting of a laxative diet and special exercises for the abdominal muscles, followed in the more stubborn cases by skilfully applied massage, vibration, or electricity, or even all of these employed for weeks if necessary. With such help there need never be failure unless there is some surgical or gynecologic cause of obstruction. He has seen chronically constipated persons far past middle age cured by diet and such mechanical measures. His article is intended to impress upon general practitioners especially, the importance of supplementing the effect of their medicines by (1) preventing their patients from setting up or aggravating diseases by following the fashion of overburdening the digestive organs with an excess of food; and (2) obtaining the valuable assistance of proper exercise and the many other accessory mechanical methods of treatment which have been introduced within recent years.

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**Angina Pectoris:** The June number of the *American Journal of Clinical Medicine* comments editorially on the curable forms of angina pectoris. Feissinger studied 80 cases and says: "All these cases offered the primordial character of angina pectoris, provocation of the pain and the sense of anguish under the influence of walking or effort." An angina where the pain and anguish awaken under walking or violent muscular contraction announces a myocarditis of the left ventricle. At the moment when fatigue lowers the faculty of vanquishing peripheral resistance, the crisis declares itself. But a great number of patients with insufficient myocardia do not suffer this pain. A nervous element must intervene which can be brought into play by causes—toxic, infectious or moral—which must not be neglected. Patients must then be protected from emotion and from fatigue and must be examined carefully for reference to a thermal station. The general treatment consists of the administration of nitrites—amyl nitrite by inhalation, tetranitrol glonoin (3 or 4 drops daily of a 1 per cent solution), and morphin (1 milligram every hour) in the crises. To this add prolonged rest, in bed, and a special diet. The patient should take a small meal every two hours, to avoid stomach distension and to reduce to a minimum the work of the stomach. Coronary arteritis, like aortic insufficiency of arterial origin, almost always is recognized as of syphilitic origin. When the Wassermann test is positive, if the treatment is instituted in good time, the cure may be obtained, in nearly every instance, by the effective use of some form of iodine, insisting upon rest at the same time. In the myocarditides the anginous pain ceases when the heart dilates. This is a general fact, but not absolute. Rest is here a great factor in amelioration. Use also digitalin, 1/10 milligram three or four times a week, and theobromin, 1/2 centigram twice a day, for a period of ten days. In

interstitial nephritis, the lactovegetarian diet, small meals, rest in bed with digitalin and theobromin promise rapid relief. The obese and aerophages are usually cured. Combat the obesity by an appropriate diet, give theobromin for a period, and the cure is only a question of time. The aerophages are nearly always the young anginous. Every man under 45 years, who is not syphilitic or aortic, and who has dolorous crises provoked by walking, may surely be considered an aerophage. Dyspeptics not infrequently have neurotic anginas, while the true aerophages have crises of the true anginous type, aroused by walking, the diaphragm displaced by gas hindering the cardiac functionation. In these two forms diet must be prescribed, and the system of small meals is very efficacious, associating sodium bicarbonate and absorbent powders; any other medication is useless, if not injurious. The author believes that every patient affected with angina pectoris can be cured, but the unsatisfactory feature is the duration of the treatment, as it may require from fifteen months to three years

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**Glycerophosphates:** The April number of *Merck's Archives* considers the therapeutic use of the glycerophosphates. The most important glycerophosphates for therapeutic use are the sodium, calcium and iron salts of glycerophosphoric acid; free glycerophosphoric acid is of little value therapeutically. It serves principally as an addition to solutions of glycerophosphates, when these for any reason are required to give an acid reaction. Robin first recommended sodium glycerophosphate as a nerve tonic, by the mouth and subcutaneously, and obtained most excellent results from its use in convalescence from influenza and other infectious diseases, and also in nervous asthenia of any origin, such as sciatica, tic douloureux, and in Addison's disease, lumbago, Graves' disease, and phosphaturia. It is less effective in tabes dorsalis, in which its action seems to be restricted to the diminution of the lightning pains. Starr had satisfactory results with the sodium glycerophosphate in Graves' disease. In one case in which a variety of remedies had been tried for one and a half years without success, he succeeded in bringing about a decided improvement in a fortnight. Kahane, as the result of many trials, confirmed the value of sodium glycerophosphate when used internally in Graves' disease, and also in chronic myelitis, hysteria, neurasthenia and neuroses. There is no need to be too cautious in the internal administration of sodium glycerophosphate, as it is perfectly harmless. As to calcium glycerophosphate, it has been pointed out that the action of calcium phosphate and of calcium glycerophosphate differs both physiologically and pharmacologically. Robin considers the calcium salt to be indicated in largely the same class of cases as the sodium, and considers the subcutaneous administration more effective as a rule, but he has obtained satisfactory results from its internal use. Patin gives incontinence of urine as another indication for calcium glycerophosphate. The drug also deserves due consideration in the treatment of pulmonary tuberculosis, as well as in rickets. The ferric salt is of special value in chlorosis and anemia, alone or combined with the calcium salt.

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### New and Nonofficial Remedies

Since publication of *New and Nonofficial Remedies*, 1913, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Magnesium Perhydrol.—A name applied to magnesium peroxid (see *New and Nonofficial Remedies*, 1913, p. 185). Merck and Co., New York. (*Jour. A. M. A.*, June 7, 1913, p. 1792).

Magnesium Perhydrol, 25 per cent.—A mixture consisting essentially of magnesium peroxid, magnesium oxid with water of hydration, containing not less than 25 per cent of magnesium peroxid. Its properties.

actions and uses are the same as those for magnesium peroxid. Merck and Co., New York (*Jour. A. M. A.*, June 7, 1913, p. 1792).

Magnesium Perhydrol, 25 per cent. Tablets, 7½ grs.—Each tablet contains magnesium perhydrol, 25 per cent., 0.5 gm. Merck and Co., New York (*Jour. A. M. A.*, June 7, 1913, p. 1792).

Luminal.—(For properties, actions and uses see *Jour. A. M. A.*, May 17, 1913, p. 1541). Farbenfabriken of Elberfeld Co., New York (*Jour. A. M. A.*, June 7, 1913, p. 1792).

Luminal Tablets, 1½ grs.—Each tablet contains luminal 0.1 gm. Farbenfabriken of Elberfeld Co., New York (*Jour. A. M. A.*, June 7, 1913, p. 1792).

Luminal Tablets, 5 grs.—Each tablet contains luminal 0.3 gm. Farbenfabriken of Elberfeld Co., New York (*Jour. A. M. A.*, June 7, 1913, p. 1792).

Luminal-Sodium.—(For properties, actions and uses see *Jour. A. M. A.*, May 17, 1913, p. 1541). Farbenfabriken of Elberfeld Co., New York (*Jour. A. M. A.*, June 7, 1913, p. 1792).

Solution Amylene-Chloral (50%), Kalle.—A 50 per cent solution of amyene chloral, a combination of chloral with amyene hydrate. It is soluble in alcohol, but insoluble in water. Its actions are much like those of chloral, but with less power to abolish the reflexes and less irritating. Merck and Co., New York (*Jour. A. M. A.*, June 14, 1913, p. 1881).

Pituitary Liquid.—Pituitary liquid is a sterile solution containing the active principle of the posterior lobe of the pituitary body of the ox. Each cubic centimeter represents 0.2 gm of the fresh posterior lobe of the pituitary body in physiologic salt solution. It is said to be useful in cases requiring stimulation of the heart or raising of the arterial tension. It is claimed to be valuable in paralytic distension of the intestines and in postoperative and other pareses as well as in promoting uterine contractions during labor. It is supplied as Ampoules Pituitary Liquid, 1 ccm, Armour and Co., Chicago, Ill. (*Jour. A. M. A.*, June 21, 1913, p. 1957).

Luminal Tablets, 1½ grs.—Each tablet contains luminal 0.1 gm. Merck and Co., New York (*Jour. A. M. A.*, June 21, 1913, p. 1957).

Luminal Tablets, 5 grs.—Each tablet contains luminal 0.3 gm. Merck and Co., New York (*Jour. A. M. A.*, June 21, 1913) p. 1957).

The following articles have also been accepted for inclusion with New and Nonofficial Remedies:

Emetine Hydrochloride, Merck (Merck & Co.)

Ampoules Emetin Hydrochlorid, Mulford, (H. K. Mulford Co.)

Agglutinating Serum for the Identification of Bacillus Typhosus (H. K. Mulford Co.)

Agglutinating Serum for the Identification of Bacillus Typhosus, A (H. K. Mulford Co.)

Agglutinating Serum for the Identification of Bacillus Typhosus, B (H. K. Mulford Co.)

Acne Vaccine (Greeley Laboratories).

Colon Vaccine (Greeley Laboratories).

Gonococcus Vaccine (Greeley Laboratories).

Meningococcus Vaccine (Greeley Laboratories).

Pneumococcus Vaccine (Greeley Laboratories).

Pyocyaneus Vaccine (Greeley Laboratories).

Staphylococcus Albus Vaccine (Greeley Laboratories).

Staphylococcus Aureus Vaccine (Greeley Laboratories).

Streptococcus Vaccine (Greeley Laboratories).

Streptococcus Erysipelatis Vaccine (Greeley Laboratories).

Tuberculin B. E. (Greeley Laboratories).

Typhoid Bacillus Vaccine (Greeley Laboratories).

For reasons explained in the report of the Council (*Jour. A. M. A.*, June 21, 1913, p. 1974) the Council has voted to reconsider the acceptance of and to omit the following from New and Nonofficial Remedies:

Thiocol Roche (Hoffman La-Roche Chemical Works), Syrup Thiocol, Roche (Hoffman La-Roche Chemical Works).

At the request of the manufacturer the Council has voted to reconsider the acceptance of and to omit the following from New and Non-official Remedies: Diphtheric Antitoxin, U. S. P., Stearns (F. Stearns & Co.)

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### Book Reviews

The Catarrhal and Suppurative Diseases of the Accessory Sinuses of the Nose. By Ross Hall Skillern, M. D., Professor of Laryngology in the Medico-Chirurgical College; Laryngologist to the Rush Hospital; Fellow of the American Laryngological, Rhinological and Otolological Society, etc. Cloth, \$5.00 net. J. B. Lippincott Company London and Philadelphia, 1913.

American and English readers are to be congratulated on the fact that at last there has appeared in their language so worthy a book on this subject. As stated by the editor in his preface "the inspiration of the work has been to set forth in the English language a thorough and exclusive treatment of this subject." Those who have followed Doctor Skillern's work through recent years will at once appreciate his special fitness for the task which he has undertaken. To undertake the publishing of any medical textbook must in these days indeed require no small degree of temerity. Doctor Skillern has fortunately chosen a field in which a work like the present one is sorely needed and whose advent should be hailed with appreciative recognition by both the English and the German speaking public.

Outside the well known classic of Hajek we know of no other text on this very special and important subject. Skillern's work certainly contains all the excellencies of its predecessor, as well as much that is new and vital. To mention all of its commendable qualities would be impossible in so brief a review and we must confine ourselves to a few of the more striking ones. One of the most conspicuous of these is the comprehensive and exhaustive reference to the literature of the various subjects discussed. As in Zarniko, so here the references are given at the bottom of the page corresponding to the text to which they refer, rather than at the end of the book, as is the case with most of the older writers. The book is a veritable compend of the literature on the accessory sinuses up to the time of its publication. Whereas full notice is taken of German and French literature, the work surpasses many of the foreign works, most notably the German, in that ample reference is made to our own literature, which is both voluminous and worthy.

Another most notable point in the present work is the wealth and profusion of the illustrations, 247 in all with five colored plates. With few exceptions these illustrations are original and are made from the author's well known collection, as well as from those to which he has had access. We regret, however, that reference to the various points of interest in the illustrations has been made by letter, the text being given below rather than in the illustration itself. This method is, to say the least, antiquated and detracts from the facility and enjoyment of the reading.

For a first edition the book contains few typographical and other errors. Some of these however have crept in and will doubtless be remedied in future editions. Some sentences too, at present a trifle ambiguous, could be improved by recasting; while the arrangement of the discussion in certain chapters would be made clearer by a more obvious grouping under main and subheads. Such defects are, however, but minor in a work of such uniform excellence. It is certainly a credit to scientific medicine, as well as to the American profession and should be in the possession of every rhinologist of the present day. W. B. C.

*Surgery of the Eye. A Hand-Book for Students and Practitioners.* By Ervin Török, M.D., Surgeon to the New York Ophthalmic and Aural Institute; Ophthalmic Surgeon to Beth Israel Hospital; Consulting Ophthalmologist to the Tarrytown Hospital and Gerald H. Grout, M.D., Assistant Surgeon to the New York Ophthalmic and Aural Institute; Instructor in the Eye Department, Vanderbilt Clinic; Consulting Ophthalmologist to the Bellevue Hospital, First Division. Cloth, 507 pages, with 509 original illustrations, 101 in colors, and two colored plates; \$4.50 net. Lea and Febiger, Philadelphia and New York, 1913.

The aim of the authors has been to produce not a large and exhaustive work but a moderate sized, practical book on the surgery of the eye. They first give several chapters on general surgical methods, upon the surroundings and general preparation for eye operations and upon instruments and their management. Then follows the surgery of the special parts. The following plan has been pursued throughout the book: "First, before describing each group of operations, we have discussed the disease for the relief of which they are intended, and have given clear indications for the selection of the proper procedure in any given case." A detailed description of the steps of each operation then follows, with a list of all the instruments required. After this the complications, that may occur at the time of operation and later, are taken up together with the postoperative care of the patient.

The text is complete, the descriptions of the operations clear, though some of them are not as accurate as they should be, as for example the description of Elliott's method of trephining for glaucoma. The illustrations are very numerous, both drawings and photographs, all of which are new and show well the steps of many of the operations, so that the book should prove valuable to the student in beginning a study of operative ophthalmology. A full index completes the volume. W. E. B.

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*Vaccine and Serum Therapy, including also a Study of Infections, Theories of Immunity, Specific Diagnosis and Chemotherapy.* By Edwin Henry Schorer, B.S., M.D., D. P. H. New (2nd) edition, thoroughly revised. Cloth, 300 pages, \$3.00. C. V. Mosby Company, St. Louis, 1913.

With the ever increasing literature upon the subject of vaccine and serum therapy, and the rapidly changing ideas caused by the immense amount of work being done by both laboratory men and clinicians, it is gratifying to find an author who in a single small volume can so clearly and concisely set forth that part of the subject which is best and most helpful to the general practitioner.

The arrangement of this work is best suited to give the reader, first, a grasp of the general principles of the subject involved and later, their application. Chapters I, II, III, and IV, pages 1 to 137, concern themselves with Infection, Immunity, Specific Diagnosis, and Specific Therapy respectively. In these the discussion is general and the principles involved are discussed in such a manner that they are easily comprehend. To some the treatment may seem puerile but to the men for whom this work was evidently written an elision of technical details is an important point. The second part of the work gives the application of the principles stated in the first. Here the specific diagnosis and treatment in the different infections are generally discussed under the heading of the etiological agent.

One of the author's main pleas is for exact diagnosis before using vaccine and serum therapy. While repeated repetition is generally to be discouraged, it is nevertheless with considerable pleasure that we note in several places his urgent warning to the therapist concerning the inadvisability of using "shotgun," mixed, and stock vaccines. This is indeed a timely warning.

A brief but comprehensive statement is made of the work of von

Pirquet and Schiek on "Serum Kraukheit," the possible use of dried antitoxic sera and a monition concerning the routine use of prophylactic doses of diphtheria antitoxin in hospital and private practice. The author's objections to the latter are well put and conclusive.

The bibliographic references made are accurate but there are numerous instances where important articles are mentioned and the exact reference not given. It is to be hoped that in future editions this will be corrected.

The author's statement, page 91, that "*it is claimed by some* (italics ours) that in typhoid fever there occurs an actual leucopenia" might cause a false impression as to the prevalence of this idea, while his statement, page 151, that "In the examination of secretions from the genito-urinary tract examination of smears stained by Gram's method are sufficient" is hardly true, as not uncommonly in vaginitis *Micrococcus catarrhalis* is encountered and its differential diagnosis from gonococcus is only made by cultural methods.

The author shows a large familiarity with his subject and his review of the literature is broad and up to date. The book is one that should be read by all physicians who use vaccine or serum therapy and have not time to do more extensive reading in original works. H. O. R.

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A Practical Treatise on the Causes, Symptoms, and Treatment of Sexual Impotence and Other Sexual Disorders in Men and Women. By William J. Robinson, M.D., Chief of the Department of Genito-Urinary Diseases and Dermatology, Bronx Hospital and Dispensary; Editor *The American Journal of Urology, Venereal and Sexual Diseases*; Editor and Founder of *The Critic and Guide*; etc. Cloth, 412 pages, \$3.00. Critic and Guide Company, New York, 1913.

Recent years have seen a very great growth of literature dealing with matters sexual, the output running the entire gamut from the salacious to the scientific and from the pornographic to the philosophical. Upon the therapeutic side, which has not been neglected, the range runs from the cure of the "running range" by local medication to the cure of sexual perversion through psychanalysis. Of Robinson's contribution to the subject we shall be frank enough to say that we have found the preface the most interesting part. From it the reviewer can take excerpts which bestow praise in a much more lavish style than the ordinary reviewer can hope to attain. The author himself says that "this book has a right to exist, for it contains some *new* information on the nature and treatment of sexual disorders, it presents the existing information in a clear, systematized form, \* \* \* and the author states his views on certain mooted sexual questions with an unequivocal clearness and positiveness. \* \* \* Will every physician, by the guidance of this book, be able to treat sexual impotence and other sexual disorders successfully? Yes, provided he possesses a modicum of common sense. \* \* \* But to any physician possessing a fair share of sound sense and judgment \* \* \* this volume should prove of inestimable value. \* \* \* One of the most valuable and unique features of the book I consider the numerous case reports, which illustrate every phase of sexual disorder. \* \* \* I have carefully avoided padding. \* \* \* Utilitarianism—practical usefulness—is the keynote of this book." What is there left for us to say?

The language at times seems much too strenuous, so that statements which might hold for individual cases or conditions are made too universally applicable. There could be less question of padding and greater ease of reference if the case reports, which at present cover almost 80 pages, had been put in somewhat smaller type than the rest of the text. The laudation of "ethical proprietaries" in the chapter on prescriptions, and the prescribing of Lactopeptine, Bromural, Styptol, Fellows' Syrup of Hypophosphites, Phosphagon, Bromulol, Borneyval, are apt to make him, who



believes in the rising tide of disapproval of wonderfully named proprietaries, have some doubt of the other therapeutic measures given.

O. T. S.

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*Sterility in the Male and Female and its Treatment.* By Max Hühner, M.D., Chief, Genito-Urinary Department, Harlem Hospital Dispensary, New York City; etc. Cloth, pages xvi and 262, \$2.00. Rebman Company, New York, 1913.

Hühner's book differs from Robinson's in that it does not pretend to cover so much ground. It differs further and essentially in the more moderate use of the English language and in the attempt to attack the problem of sterility from the experimental and investigational standpoint. It is like Robinson's book in that it would, like the latter, be improved by putting the case reports and the results of the numerous microscopic examinations in smaller type. Hühner's discussion is limited to those cases in which, with normal coitus, pregnancy does not occur. It deals, therefore, in part with the condition of azoospermia, and in part with the role which various portions of the female genital tract may play in the destruction of normal spermatozoa. The findings relating to these two points were obtained by the microscopic study of condom specimens on the one hand, and of the fluids of the female genital tract after normal coitus on the other. To determine whether spermatozoa are formed in the testis in any given case in which they are absent in the ejaculated fluid the author recommends aspiration of the testicle and even, where there is no hope of bringing about pregnancy in any other way, the injection of the aspirated testicular fluid into the cervical canal. The space devoted to treatment is limited; no exaggerated claims are made; the diagnosis made by careful microscopic study, the possible remedial measures are few.

O. T. S.

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### Acknowledgements

*A Reference Handbook of the Medical Sciences.* By various writers. Third edition, completely revised and rewritten. Edited by Thomas Lathrop Stedman, A.M., M.D. Complete in eight volumes. Vol. II: Bad-Chl. 832 pages, illustrated by numerous chromolithographs and 754 halftone and wood engravings. Imperial quarto. Price of the set: muslin, \$56.00; leather, \$64.00; half-morocco, \$72.00 (subscription). Wm. Wood & Company, New York, 1913.

*Genitourinary Diagnosis and Therapy.* For Urologists and General Practitioners. By Dr. Ernst Portner, Berlin, Germany. Translated and edited by Bransford Lewis, M.D., B.Sc., Professor of Genitourinary Surgery, Medical Department of St. Louis University; Genitourinary Surgeon to St. John's Hospital and Frisco Hospital; etc. Cloth, 221 pages, with 43 illustrations; \$2.50. C. V. Mosby Company, St. Louis, 1913.

*Annual Statistical Report of the Secretary of State to the Governor and General Assembly of the State of Ohio for the Year ending November 15, 1912.*

*Report on Post-Mortem Examinations in the United States.* By the Public Health, Hospital and Budget Committee of the New York Academy of Medicine. Reprinted, with appendix added, from Jour. Amer. Med. Assn, June 7, 1913, LX, 1784-1791.

Dr. Ephriam McDowell, "Father of Ovariectomy": His Life and His Work. By August Schnachner, M.D., Louisville, Ky. Reprinted from Johns Hopkins Hos. Bull., XXIV, 153-159, May, 1913.

*A List of the State and Insular Health Authorities of the United States.* Reprint No. 123 from Public Health Reports, April 25, 1913. Government Printing Office, Washington.

*Sanitation of Flood-Stricken Towns and Cities.* With special reference to conditions observed in river towns and cities of Kentucky. By L. L. Lumsden, Surgeon, U. S. P. H. Service. Reprint No. 131 from Public Health Reports, June 13, 1913. Government Printing Office, Washington.

The Lilly Scientific Bulletin. Series 1, No. 3, June, 1913. Eli Lilly & Company, Indianapolis.

71st Annual Announcement of Rush Medical College. May, 1913. University of Chicago, Chicago.

Annual Calendar of the Faculty of Medicine and Department of Dentistry, McGill University, Montreal. 82nd Session, 1913-1914.

Annual Catalogue and Announcement, Medical Department, University of Southern California. Session of 1913-1914.

**Indications for the Use of Nitroglycerin.**—1. The general indications for the use of nitroglycerin are (1) to relieve symptoms of localized arteriosclerosis or arterial spasm in vitally important regions of the body, and, when there is pain due to contracted or diseased arteries, in other regions; (2) to reduce general high blood-pressure in selected cases, if its continuance threatens accidents to the cardiovascular apparatus; and (3) to clear the diagnosis.

2. The chief contra-indications to the use of nitroglycerin are (1) low or relatively low blood-pressure; (2) advanced chronic nephritis with very high blood-pressure and toxemic condition producing high blood-pressure, as a rule; and (3) the presence of an idiosyncrasy in regard to its action.

3. Nitroglycerin should never be used for the primary purpose of a heart stimulant.

4. Nitroglycerin given under the tongue produces almost as prompt an effect as when injected under the skin.

5. Nitroglycerin, if given too long or in too large doses, can produce injurious effects, which, however, usually pass away, at least apparently, when it is discontinued.—Cornwall in *J. A. M. A.*

**Action of Emmenagogue Oils.**—1. The so-called emmenagogue oils are by no means innocuous substances.

2. They have absolutely no direct stimulating action on the uterine contractions or tonicity.

3. On the contrary, they inhibit such contractions, and even paralyze the uterus.

4. Their action as abortifacients, if they act as such, is no different from that of any other powerful systemic poison, such as phosphorous or arsenic.

5. They have very little if any therapeutic value, and do not deserve the place among the official pharmacologic preparations which many of them hold.—Macht in *J. A. M. A.*     o o o o o o o o oo  
them hold.—Macht in *J. A. M. A.*

**Histopathology of Pompholyx.**—The pathologic changes in pompholyx are confined almost wholly to prickle-cell layer, only a slight perivascular infiltration being present in the derma.

The coil-glands are not involved, and the ducts are implicated only by accident. At bottom, the condition is very probably a neurosis, the direct exciting cause being a toxin other than locally microbic in origin.—Sutton in *J. A. M. A.*

## Medical News

**The American Proctologic Society**, at its fifteenth annual meeting held at Minneapolis, June 16 and 17, elected the following officers: President, Joseph M. Mathews, of Louisville; Vice-President, J. A. MacMillan, of Detroit; Secretary-Treasurer, Alfred J. Zobel, of San Francisco. The following were elected associate fellows: V. Lee Fitzgerald, of Providence; J. M. Frankenburger, of Kansas City; W. H. Kiger, of Los Angeles; W. I. LeFevre, of Cleveland.

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**Medical Examiners Elect.**—At the annual meeting of the American Association of Medical Examiners in Minneapolis, June 17, Henry Wireman Cook, Minneapolis, was elected president.

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**Antituberculosis Society Election.**—At the annual meeting of the Ohio Society for the Prevention of Tuberculosis in Columbus, June 24, Samuel Iglauer, Cincinnati, was elected president, C. F. Tenney, Toledo, first vice-president, and E. V. Hug, Lorain, H. E. Welch, Youngstown, James B. Poling, Lima, and C. F. Tenney, Toledo, directors.

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**Superintendent of Cincinnati City Hospital Resigns.**—H. Summersgill, who came from New Haven, Conn., eight months ago to become superintendent of the new city hospital of Cincinnati at a salary of \$5000 per year, has resigned, giving as his reason "that the conditions which are operative here (meaning Cincinnati) will not permit of the conducting of an efficient institution."

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**Reversal of State Medical Board Ruling Asked.**—T. A. Miller, of Toledo, and M. K. Lambright, of Cincinnati, have appeared before the governor and attorney general and have asked a reversal of a ruling of the State Medical Board, under which their certificates were revoked.

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**Lodge Practice Barred.**—The Champaign County Medical Society has passed resolutions debarring its members from lodge practice.

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**The Mt. Vernon Medical and Surgical Sanatorium** has been sold by V. L. Fisher to Maccowan Greenlee, of Atlanta.

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**Paul C. Colgrove**, of Iowa City, Iowa, has located in Oberlin.—David Thomas has opened an office at 1932 Broadway, Lorain.

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**Physician Nominated for Postmaster.**—The nomination of W. J. Prince as postmaster at Piqua has been sent to the Senate by President Wilson.

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**H. H. Herman**, of Dayton, has been appointed a trustee of Miami University.

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**George W. Crile** has been made an honorary fellow of the Royal College of Surgeons of London.

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**Walter I. LeFevre** has been made an associate fellow of the American Proctologic Society.

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**W. T. Miller** has been reappointed a member of the State Board of Health.

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**New City Chemist.**—Wilbur S. White, a graduate of Yale University, has been appointed city chemist of Cleveland.

**Academy of Medicine Picnic.**—The Academy of Medicine of Cleveland held its annual picnic at Avon Beach, Wednesday, July 16. In enthusiasm and attendance it was the most successful outing held by the Academy. Seventy-five members were present at the dinner. With the help of a few Eastsiders the Westsiders defeated the Eastsiders at baseball by a score of 25 to 23. At indoor baseball the Patriarchs beat the Upstarts by a score of 97 to 73.

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## Deaths

**Jonathan D. Whittaker**, a practitioner since 1845; died at his home in Perrysburg, Ohio, June 12, from obstructive jaundice, aged 89.

**Will C. Washburn**, Cincinnati College of Medicine and Surgery, 1897; founder of the night schools of Cincinnati and of the Glenairy School for the Training of Defective Children; principal of the eleventh district public school of Cincinnati; died at his home, June 24, from nephritis, aged 61.

**James R. Taylor**, College of Physicians and Surgeons, Baltimore, 1881; died at his home in Marietta, June 27, aged 63.

**Giovanni C. D. Caruso**, A. M., Ph. D., M. D., Royal University of Naples, 1888; a resident of the United States during the past twenty-three years; a man of high intellectual order and profound in philosophy and history; of sterling character and scrupulous honesty; died at his home in Cleveland, June 27, from apoplexy, aged 52.

**Adna Leonard Innes**, Pulte Medical College, Cincinnati, 1904; of Cleveland; died at the home of his sister in Clinton, Cincinnati, July 4, aged 35.

**Charles O. McCune**, College of Physicians and Surgeons, Baltimore, 1879; of Unionville Center; died in Mount Carmel Hospital, Columbus, July 5, from heart disease, aged 66.

**Albert Joseph Quinlan**, Toledo Medical College, 1909; of Cleveland; died July 9, from pneumonia, aged 28.

**Vincent H. Gaskill**, Berkshire Medical College, Pittsfield, Mass., 1863; during two years a surgeon in the navy and for the past fifty years a practitioner at Pancoastburg; died July 11, aged 70.

**Simon P. Wise**, Columbia University, College of Physicians and Surgeons, New York, 1871; for forty years a practitioner at Millersburg; a member of the first Ohio State Board of Health; died suddenly July 22, aged 55.

**Harvey Allen Snyder**, Cleveland-Pulte Medical College, 1904; of Barberton; died suddenly August 5, aged 44.

# The Cleveland Medical Journal

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VOL. XII

AUGUST

No. 8

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## The Kinetic Theory of Shock and its Prevention Through Anoci-Association (Shockless Operation)

By GEORGE W. CRILE, M. D., Cleveland

### Introduction

When a barefoot boy steps on a sharp stone there is an immediate discharge of nervous energy in his efforts to escape from the wounding stone. This is not a voluntary act. It is not due to his own personal experience (i. e., his ontogeny), but is due to the experience of his progenitors during the vast periods of time required for the evolution of the species to which he belongs, i. e., his phylogeny. The wounding stone made an impression upon the nerve receptors in the foot similar to the innumerable injuries which gave origin to this nerve mechanism itself during the boy's vast phylogenetic or ancestral experience. The stone supplied the phylogenetic association, and the appropriate discharge of nervous energy automatically followed. If the stone be only lightly applied there is a discharge of nervous energy from the sensation of tickling, but if the sole of the foot is repeatedly bruised or crushed by the stone, shock may be produced. The body has had implanted within it other similar mechanisms of ancestral or phylogenetic origin, the purpose of which is the discharge of energy for the good of the individual.

According to my kinetic theory of shock, it is one of these mechanisms—the motor mechanism in particular—which, through its phylogenetic association with injury of the individual, is responsible for the discharge of energy represented by shock. According to this theory, the essential lesions of shock are in the brain cells and are caused by the conversion of potential energy in the brain cells into kinetic energy, at the expense of certain chemical compounds stored in the cells.

There is strong evidence that animals capable of being shocked are animals whose self preservation originally depended

upon some form of motor activity. In man and other animals this motor activity expressed itself in running and fighting; hence the motor mechanism comprises the muscles and all the organs that contribute to their activity.

Motor activity is excited by the adequate stimulation of the nerve ceptors, both of the *contact* ceptors in the skin and in other tissues, and of the *distance* ceptors or special senses. I assume that stimulation of the distance ceptors (special senses) is as potent as stimulation of the contact ceptors in producing a discharge of energy. I assume, further, that the environment of the past (phylogeny), through the experience of adaptation to environment, predetermines the environmental reactions of the present. In each individual at a given time, there is a limited amount of potential energy stored in the brain cells. Motor activity, expressed as action or emotion, following upon each stimulus, whether traumatic or psychic, diminishes by so much the amount of potential energy left in the brain cells. Stimuli of sufficient number or intensity inevitably cause exhaustion or death. If this motor activity, resulting from response to stimuli, takes the form of obvious work performed, such as running, the phenomena expressing the depletion of the vital force are termed *physical exhaustion*. If the expenditure of vital force is due to traumatic or to psychic stimuli which lead to no obvious work performed, especially if the stimuli are strong and the expenditure of energy is rapid—the condition is designated *shock*.

Shock may, of course, be produced by physical injury without anesthesia.

### Does Inhalation Anesthesia Prevent Shock?

The word anesthesia—meaning without feeling—describes accurately the effect of inhalation anesthetics. Although no pain is felt in operations under inhalation anesthesia, the nerve impulses set up by a surgical operation reach the brain. We know that not every portion of the brain is fully anesthetized, since surgical anesthesia does not kill. The question then is, what effect has trauma under surgical anesthesia upon that portion of the brain that remains awake? If, in surgical anesthesia the traumatic impulses of operation cause an excitation of the wide-awake cells, are the remainder of the cells of the brain, despite anesthesia, influenced in any way? If influenced, they are at least prevented by anesthesia from expression through conscious perceptions or muscular action.

We determined whether or not the "anesthetized" cells are influenced by trauma under inhalation anesthesia by noting in patients the physiological functions after recovery from anesthesia and by examining the brain cells of animals which had been subjected to shock-producing trauma. It has long been known that the vaso-motor, the cardiac and the respiratory centers discharge energy in response to traumatic stimuli applied to various sensitive regions of the body during surgical anesthesia. Our experiments have shown that if the trauma is sufficient, exhaustion of the entire brain may be observed after the effects of anesthesia have disappeared; that is to say,—despite the complete paralysis of voluntary motion and the loss of consciousness due to inhalation anesthesia, the traumatic impulses do reach and influence every other portion of the brain. We observed also that in every instance the changes in the brain cells of the cortex and of the cerebellum were more marked than in those of the medulla and the cord.

There is also strong negative evidence that traumatic impulses are not excluded by ether anesthesia from that part of the brain that is apparently asleep. For if the factor of fear be excluded and if in addition traumatic impulses are prevented from reaching the brain by blocking the nerve trunks by local anesthesia, then, despite the intensity or the duration of the trauma, within the zone so blocked no exhaustion follows after the effect of the anesthetic disappears, and no morphologic changes are noted in the brain cells. Still further negative evidence that inhalation anesthesia offers to the brain cells little or no protection from trauma is derived from the following experiments: Dogs whose spinal cords had been divided at the level of the first dorsal segment and that had then been kept in good condition for two months showed a recovery of the spinal reflexes, such as the scratch reflex. Animals so treated are known as "spinal dogs." Now in a "spinal dog" the abdomen and the hind extremities have no direct nerve connection with the brain. For four hours at a time we submitted such dogs to a continuous severe trauma of the abdominal viscera and of the hind extremities. There resulted but slight change in either the circulation or the respiration, and no microscopical alteration of the brain cells was noted. Judging from a large number of experiments on normal dogs under ether, such an amount of trauma would have caused not only a complete physical exhaustion, but also a morphologic alteration of all the brain cells and the

physical destruction of many—indeed it would quite surely have killed the animal.

We must, therefore, conclude that, although ether anesthesia produces unconsciousness, it is in reality only a veneer, as it protects none of the brain cells against exhaustion from the trauma of surgical operations.

### The Cause of the Exhaustion of the Brain Cells from Trauma of Various Parts of the Body under Inhalation Anesthesia

First, are the brain cell changes due to anesthetics *per se*? Numerous experiments on animals to determine the effect of ether anesthesia, *per se*, that is, ether anesthesia without trauma, showed neither the characteristic physiologic exhaustion after the anesthesia had worn off nor characteristic changes in the brain cells. Observation of the behavior of individuals under deep and under light anesthesia during physical injury at once gave the cue to the cause of the discharge of energy, the consequent physiologic exhaustion and the morphologic changes in the brain cells. Under surgical anesthesia, if rough handling of sensitive tissues is made, there is observed usually a marked increase in the respiratory rate and an alteration in blood pressure. Under light anesthesia severe manipulation of the peritoneum often causes such vigorous contractions of the abdominal muscles that the operator may be greatly hindered in his work. Muscular response to trauma under inhalation anesthesia may be only purposeless moving, but if the anesthesia is sufficiently light and the trauma is sufficiently strong, movements, unmistakably purposive, may be produced. To injury under inhalation anesthesia every grade of response may be seen, varying from the slightest change in the respiration or change in the blood pressure to a vigorous defensive struggle. As to the purpose of these subconscious movements there can be no doubt—*they are efforts to escape from injury*. The respiratory centers and the circulatory centers are doing their part in crying out—in trying to escape. So, too, all the rest of the brain cells are doing their part in crying out, in trying to escape; but because of the anesthetic paralysis the voluntary muscles cannot express themselves. Were it not for the muscular paralysis the patient's face would without doubt express motor activity as strongly as in the accompanying picture of the athlete whose motor mechanism is driven by voluntary impulses only. The motor mechanism of a patient under



inhalation anesthesia may be driven even more powerfully, though in silence, throughout the course of a surgical operation.

The result is the same as it would be if a major surgical operation were to be performed under curare alone. Curare completely paralyzes all voluntary muscles, but produces no anesthesia. It gives, therefore, complete muscular relaxation—a dead paralysis that would satisfy the roughest surgeon. During such an operation there would be absolute stillness, but after the paralyzing effect of the curare had worn off and the patient had become again able to express himself, what would he say? What would the surgeon think? Yet this is just the punishment the surgeon inflicts daily on the subconscious brain, and this explains why a patient in the flood of health and with composed face may emerge broken and shattered and with the faces of the tortured from a severe, perhaps rough operation under inhalation anesthesia.

If the trauma under inhalation anesthesia be sufficiently strong and if it be repeated with sufficient frequency, the brain cells will finally be deprived of so much of their potential energy that they will become exhausted. The resulting exhaustion is the same as that which follows a strenuous and too prolonged muscular exertion, such, for example, as running a Marathon. Whether the nerve energy of the brain is discharged by injury under anesthesia, by normal physical exertion, or by emotion, identical morphologic changes are seen in the brain cells. The impairment of function in shock from injury, in exhaustion from overwork, and in exhaustion from pure fear is the same. In each a certain length of time is required to effect recovery, and in each morphologic changes in the brain cells are produced.

The next questions are these: Is shock produced with equal facility under ether and under nitrous oxide, and what effect has local anesthesia?

### The Anesthetic Factor in Shock

Assuming that the morphologic changes in the brain cells are due to the fact that nervous energy is produced by the conversion of certain chemical compounds in the brain cells into simpler compounds, and that this conversion of potential energy into kinetic energy is due to oxidation, then one would expect to find that a given amount of trauma under an anesthetic like nitrous oxide would produce less change than an equal amount of trauma in an animal under ether; for nitrous oxide, more

than ether, owes its anesthetic property to its interference with the use of oxygen by the brain cells. Testing this point experimentally, we found that under approximately equal trauma the changes in the brain cells were approximately three times as great under ether anesthesia as under nitrous oxide anesthesia; that the fall in the blood pressure was on the average two and one half times greater under ether than under nitrous oxide; and finally that the condition of the animal was better after trauma under nitrous oxide than after equal trauma under ether. In the course of operations on the human body one observes constantly the same protective effect of nitrous oxide. This, however, is what one should expect if the kinetic theory of shock be true. Then, too, the mere excitation due to the feeling of suffocation while inhaling ether causes a certain amount of exhaustion. On the kinetic theory no shock could be produced by traumatizing a territory infiltrated with local anesthetics—a territory whose nerve connection with the brain has been broken by nerve blocking, thus reproducing the condition of a “spinal” dog whose cord has been divided in the upper dorsal region. Our experiments showed that neither brain cell changes nor physical exhaustion were produced by any trauma, however severe or prolonged, inflicted upon a “blocked” territory. We concluded, there, that the traumatic impulses must reach the brain to cause shock.

We have not yet shown, however, that the brain cell changes are not due to some secondary factor, such as internal secretions, altered gases in the blood, or other metabolic changes.

#### Are the Brain Cell Changes due to Internal Secretions or to Altered Gases in the Blood?

If the kinetic theory of shock be correct, then if the circulation of two dogs be so anastomosed that the blood streams of both animals freely intermingle and if only one animal be traumatized, the functional impairment and the brain cell changes will be limited to the animal receiving the injury; but if shock be due to the production of some noxious secretion, to some poisonous product of metabolism thrown into the blood stream, secondarily affecting the brain, or if shock be due to gaseous changes in the blood caused by trauma, then both dogs should suffer equally.

Our experiments were as follows: The proximal end of one carotid artery of Dog A was anastomosed with the distal

end of the corresponding carotid artery of Dog B and one jugular vein of Dog A was then anastomosed with the corresponding vein of Dog B so that the blood streams of both animals intermingled with entire freedom and in large volume. The dogs were approximately of equal weight and physical condition. For two hours Dog A was traumatized. The animals were killed simultaneously and their brain cells were studied by parallel technique. The experiment showed brain cell changes—typical shock changes—only in Dog A, the dog whose body had been traumatized, and no brain cell changes in Dog B, whose body had not been traumatized, but through whose brain the blood of the traumatized dog flowed freely during the two hours. This result strongly supports the kinetic theory and with equal strength opposes any theory which implies that internal secretions, gaseous changes in the blood, or the production of noxious products may secondarily cause brain cell changes.

#### **Does Anemia Alone Cause Brain Cell Changes?**

There remains also the possibility that low blood pressure—*anemia alone*—may cause the brain cell changes. We have shown elsewhere the destructive effects of anemia on the brain cells; that in resuscitation experiments a total anemia of seven minutes caused fatal brain cell changes; and that brain cell changes are also produced by low blood pressure. We had hoped that the brain cell changes in shock were due wholly to low blood pressure, but in our blood transfusion experiments we found that in addition there was another definite factor.

This was shown by the following experiment: The blood vessels of two animals were anastomosed, and as the blood pressure in the traumatized animal began to fall fresh blood was added, so that during the entire seance of shock trauma the blood pressure was maintained at the normal level. Specimens of the brain were removed from the living animal and brain cell changes were demonstrated, but it required much more trauma to produce these changes than in the animals whose blood pressure was allowed to take its course. We conclude that anemia is a factor in producing brain cell changes in shock, yet it certainly is but a secondary factor.

#### **Are Traumata of all Parts of the Body Equally Capable of Producing Shock?**

Innumerable nerve receptors have been implanted in the body for the purpose of effecting adaptation to environment;

some of these receptors, such as those which assist in acquiring food, may be designated *bene ceptors*, while other receptors which have as their function the protection of the body against harmful or nocuous contacts are called *nociceptors* (Sherrington). As one would expect, therefore, the nociceptors are not distributed throughout the body equally, but are most numerous in those parts which in the course of evolution have been most frequently subjected to injury. So the nociceptors of the skin are most numerous in the hands and the feet, while the back, being less exposed, has fewer nociceptors. Likewise in the interior and more protected parts there are few nociceptors, and there are none in the brain, which has ever been protected by the skull.

If the kinetic theory of shock be correct, then, according to the general biologic law of adaptations, we should expect that surgical shock could be produced in those parts of the body only in which have been implanted sensitive nerves or nociceptors. On the other hand, since there are few or no nociceptors in those parts of the body which have always been protected against injury and which have not been presented to our enemies and to our rough environment, then, according to this theory, the injury of these parts cannot produce shock. From numerous experiments we find that little or no true surgical shock can be produced by trauma of the deep parts of the back, behind the peritoneum, and in the brain.

We therefore took the brain as a representative tissue having no nociceptors or pain nerves, the physical trauma of which could produce an adaptive response, and we put this to a direct experimental test as follows: The skull of a dog was cut away under combined local and general anesthesia. The brain was traumatized with rough gauze and instruments and was extensively cauterized even to the extent of gradual destruction of one hemisphere. No noticeable change in the blood pressure was apparent during the operation, and no change was observed in the brain cells of the opposite uninjured hemisphere. Our experiment showed, therefore, that the cerebral hemispheres possess no mechanism for the production of pure surgical shock. Collapse from interference with the medullary centers is of course not true surgical shock.

Now, if trauma of sensitive parts of the body produces an adaptive response by the brain cells causing a release of energy; and if this release of energy, when the trauma is sufficiently

strong or repeated with sufficient frequency, leads to functional exhaustion and brain cell changes, then with equal facility, exhaustion should be produced by perceptions through the special senses, such as seeing or hearing danger. Fear and trauma being phylogenetically akin—either one alone or associated with the other should cause shock. This point was then studied.

### Can Fear Alone Cause Shock?

This was put to a direct experimental test as follows: Rabbits were frightened by dogs, but were not injured and were not chased. After various periods of time the animals were killed and their brain cells were compared with the normal. Widespread changes were seen. The principal clinical phenomena were rapid heart, accelerated respiration, prostration, tremors, and a rise in temperature.

The dog showed similar phenomena—excepting that instead of muscular relaxation as in the rabbit, the dog showed aggressive muscular action. Both the dog and the rabbit were exhausted, and although the dog exerted himself actively and the rabbit remained physically passive, the rabbit was much more exhausted.

Observations were made on the brain of a fox chased for two hours by members of a hunt club and finally overtaken by the hounds and killed. The brain cells of this fox as compared with those of a normal fox showed extensive physical changes in most of the cells. The brain of dogs and woodchucks after fighting showed similar changes. Emotional stimulation alone or combined with physical activity showed the same changes as physical injury. The brains of salmon at the mouth of the Columbia river were compared with the brains of other salmon at the head waters in the spawning season. Like changes were seen. Even the brain cells of electric fish were similarly altered after discharges.

That exhaustion follows fright and terror is attested by every human experience. Fear causes a low threshold, and in that stage the effects of traumatic or psychic stimuli are augmented. A patient going under anesthesia in fear displays the fear phenomena throughout the operation, and therefore is shocked more readily than if he were without fear.

### Insomnia

If all the foregoing conditions show brain cell changes characteristic of exhaustion, then keeping animals awake should

show the same. The role of insomnia in producing exhaustion was put to experimental test as follows: Rabbits were kept awake for 100 hours. They then showed physical exhaustion and the brain cell changes characteristic of fatigue. Sleep restored both the physiologic condition and the physical status of the brain cells excepting of those which had become exhausted beyond the power of recuperation.

#### **Influence of Other Causes of Vital Depression**

Again, if the kinetic theory be correct, if an animal has already been subjected to other influences which cause morphologic changes in the brain cells and it be then subjected to trauma, such an animal would be expected to endure less trauma, and survive, than a normal animal. Among the agencies that cause the characteristic changes of fatigue in the morphology of the brain cells are anemia, infection, toxemia, physical exercise, old age, starvation, exophthalmic goitre, fear, worry, and physical injury. (These studies will soon be published in detail.) Further observations have shown that just in proportion to the deterioration in the brain cells from any of these factors by so much less can an animal endure injury and survive.

#### **Type of Trauma**

It may here be added that the intensity of shock depends entirely on the type of trauma to which one is subjected. Tearing, crushing, and bruising cause the greatest shock, while comparatively slight shock would result if the body were cut to pieces with a razor. This observation is so commonplace that its significance is easily lost—namely, that the more nearly the trauma resembles harsh contact with environment and the method of attack of the carnivora, the greater will be the resultant shock.

#### **The Effect of Drugs**

Such stimulants as strychnin and nicotin in physiologic dosage cause physical exhaustion and brain cell changes. First there are strong convulsions; if the dose is repeated the convulsions become milder until the stage of exhaustion is reached. It is as rational to treat the exhaustion of shock with strychnin as to treat the exhaustion of strychnin with trauma. These agencies are synergistic. Alcohol in large doses causes physical exhaustion and brain cell changes. Morphia and scopolamin even in toxic doses cause no apparent changes in the brain cells.

The quiet and solace produced by these drugs undoubtedly tend to conserve the output of energy. Morphia and scopolamin in physiologic dosage diminish but do not prevent shock from trauma; but they do prevent psychic shock. Under the influence of morphia no one is brave, no one is a coward; one is indifferent to danger. This negative state induced by morphia and scopolamin is due to the depression of the associational power of the brain—the depression or obliteration of associative memory—and this is an important clinical cue.

### The Treatment of Shock

It is obvious at once not only that stimulants are without value, but that they do harm. Their use is as illogical as is an attempt to ward off bankruptcy by spending more money. Morphia and sedatives generally are valuable as conservators of energy. The one important goal is overcoming the destructive effect of anemia on the brain. Can this be done by using saline infusions? An extensive research on this point has shown conclusively that the blood can not be diluted with saline solution—except temporarily. If saline solution is infused continuously into a vein of a normal dog the animal may be killed in from five to eight minutes. What is the cause of death? Is it asphyxia, produced by transudation into the lung? No! It is the mechanical fixation of the abdominal and the thoracic respiratory muscles and of the diaphragm through enormous distension of the abdominal viscera. The walls and the lumen of the stomach and intestines are packed with saline; the liver is enormously engorged; the spleen is enlarged; the saline solution runs out through the blood vessel walls just as fast as it enters. Hence in saline solution we have a definitely limited though useful remedy. Posture, bandaging, the pneumatic rubber suit—all are useful, but none is final. The final remedy must be some circulating medium that will remain in the circulation, that will do the work of blood, and that when introduced in large enough quantities will develop a peripheral resistance through stretching the elastic blood vessel. This peripheral resistance based on passive elasticity will then serve as a substitute for the exhausted vasomotor center. The heart will continue to act so long as the coronary arteries receive a pressure of forty or more mm. Hg. and as the proper nutriment is given the heart muscle. The only fluid that will answer these purposes is blood—human blood.

Having determined this, we were led to work out the

problem of transfusion of blood, first by experiment in the laboratory, later by practical application in the clinic. This has proven ideal. Almost no case of shock will die of shock alone if given an adequate transfusion of human blood. The transformation is dramatic, especially in shock with hemorrhage. One hint here in advance of detailed publication—low blood pressure deteriorates the brain cells, therefore avoid the final collapse by timely transfusion. The transfusion of blood is a specialized technique, the details of which should be mastered in advance of the emergency.

As an interesting side light we several years ago found in our investigation that beheaded dogs could be kept "alive" (?) a half day or longer either by slow adrenalin infusion or by over-transfusion of blood, thereby maintaining a normal blood pressure without assistance from the brain.

Having now considered the cause and the treatment of shock as elucidated by our experimental and clinical researches, we will next consider a matter of direct practical importance—viz: the prevention of shock—the shockless operation through anoci-association.

### Anoci-Association

On these foregoing premises the kinetic theory rests. On the kinetic theory a new principle of operative surgery is founded. This principle can best be expressed by coining a new word, viz: Anoci-association. An adequate stimulus with or without inhalation anesthesia, whether from trauma or from emotion, causes the brain cells to discharge some of their stored energy, that is to say, the sight of the operating room, the spoken word implying danger, the taking of the anesthetic, the instrumental injury of tissues in the course of the operation, and the traction of the stitches after operation, all are adequate stimuli. Therefore, the stored energy of the brain cells is consumed during surgical operations and during psychic strain. Obviously, the only practical method of preventing the consumption of this stored energy of the brain cells is the development of a principle of operative surgery the practice of which will exclude from the brain the stimuli of the special senses and the stimuli of common sensation. This is the principle of *anoci-association*, meaning the exclusion of all *nocuous* or harmful *associations* or stimuli.

The principle of anoci-association may be illustrated by the wrecked Titanic. The story of the stress and the psychic strain



of the survivors is known, that of the lost may easily be imagined; the future haunting memory of this experience by the survivors may be safely predicted. Such is the result of the conventional surgical operation. Now if a survivor of this ship had been so skillfully anesthetized on his bed just before the accident, that he knew nothing of the impending disaster, and if he then had been gently carried up on deck, lowered into a life-boat and taken aboard the rescue ship without being allowed to awaken from his anesthesia until in bed in a comfortable stateroom—if then he was told that he had been transferred from the sinking ship but that he was now safe and would soon see his home—this would be anoci-association.

Now is there a single anesthetic that will exclude all nocuous or harmful physical and psychic stimuli from the brain? By blocking nerve conduction local anesthetics protect the brain from local operative injury, but they do not protect the brain against destructive psychic strain; inhalation anesthetics exclude the psychic stimulation of the brain cells, but do *not* exclude the operative stimulation; and anesthetics introduced hypodermically being uncontrollable, are excluded on principle. Each anesthetic covers a part of the field, but there is no single agent that *alone* can produce *anoci-association*, which is the goal of operative surgery. We, therefore, do not advocate ether alone, nor chloroform alone, nor nitrous oxide alone; we do not advocate local anesthesia alone, nor morphin and scopolamin alone, nor spinal anesthesia alone, but through *selection* and *combination* of anesthetics we aim to attain an anesthesia that will exclude all stimuli from the brain, and thereby attain anoci-association.

The description of this technique will be limited to abdominal and goitre operations which will serve as illustrations of the principle.

### Abdominal Operations

1st. Excluding the very young, the aged, and patients with depressed vitality, we first administer, as an average, one-sixth of a grain of morphin and 1/150 of a grain of scopolamin one hour before operation.

2nd. If local anesthesia alone is employed, novocain in 1/400 solution is used by progressive local infiltration.

3rd. If inhalation anesthesia is employed we administer nitrous oxide—either alone or with ether added as required.

4th. As soon as the patient is unconscious, first the skin

and then the subcutaneous tissue is infiltrated with 1/400 novocain. In order to spread the novocain, immediate local pressure is applied with the hand. Anesthesia is immediate. Incision through this anesthetized zone exposes the fascia. The fascia is then novocainized, subjected to pressure, and divided. This brings us to the remaining muscle or posterior sheath and to the peritoneum. These structures are then infiltrated with novocain, subjected to pressure, and divided within the blocked zone. If blocking has been complete, then upon opening the abdomen there will be found no increased intra-abdominal pressure, no tendency to expulsion of the intestines, and no muscular rigidity.

5th. The peritoneum is next everted and a  $\frac{1}{2}$  per cent solution of quinin and urea hydrochloride is infiltrated about the line of proposed sutures, and as before the parts are then subjected to momentary pressure. This infiltration serves as a block and as its effects last for several days, it should prevent or at least minimize the postoperative wound pain and the postoperative gas pains, and by so much minimize postoperative shock. Quinin and urea causes a certain amount of edema of tissue which lasts for some time after the wound is healed.

6th. The relaxed abdominal wall will permit exploration of the entire abdominal cavity with ease. If there is no cancer nor acute infection in the field of operation, then the following regions may be blocked as completely and in the same manner as the abdominal wall—viz: the mesoappendix, the base of the gall bladder, the uterus, the broad ligaments and the round ligaments, the mesentery, and any portion of the peritoneum. On account of the absence of nociceptors, operations on the stomach and intestines made without pulling on their attachment cause no pain, and hence the novocain infiltration of these viscera is not required. If the brain has received no stimuli during the operation then the closure of the upper abdomen is as easy as the closure of the lower—all is done with the ease of relaxation. What is the result? No matter how extensive the operation, no matter how weak the patient, no matter what part is involved, if *anoci* technique is perfectly carried out the pulse rate at the end of the operation is the same as at the beginning. The postoperative rise of temperature, the acceleration of the pulse, the pain, the nausea and the distension are minimized or wholly prevented (Chart I).

Degrees	98	99	100	101	102	103
Ether.						
N <sub>2</sub> O.						
Anoci.						

Beats.	70	80	90	100	110	120
Ether.						
N <sub>2</sub> O.						
Anoci.						

Chart I. Abdominal hysterectomy. The temperature: Each heavy line represents the average 5:00 P. M. temperature of ten patients during the first four days after operation. The pulse: Each heavy line represents the average 5:00 P. M. pulse rate of ten patients during the first four days after operation.

### Graves' Disease

I believe every one will agree that a technique that can carry an advanced exophthalmic goitre case through an operation without increasing the pulse rate can all the more readily do as much for any other operation. This can be done by the following technique; the operation being either ligation or lobectomy. The patient's consent to an operation is secured before hospital treatment is begun.

*Ligation* is performed without removing the patient from bed. In performing ligation nitrous oxide and oxygen may or may not be administered; but the brain is always protected by a complete local blocking with novocain during operation, and a complete quinin and urea hydrochloride infiltration at the close of the operation.

If *lobectomy* is performed, the patient is anesthetized with nitrous oxide-oxygen in bed. As fictitious anesthesia has been given under the guise of treatment for several days previous to the operation, the patient when anesthetized is free from psychic strain, as he is under the impression that he is receiving an inhalation treatment.

When anesthetized the patient is taken to the operating room. The division of tissue is preceded by a blocking so complete that no activating impulse can reach the brain. Before

the wound is closed every part of the field is completely blocked by quinin and urea hydrochloride injected with a hypodermic needle. The patient is kept unconscious, under anesthesia, until he has returned to his room and until his room is restored to its condition when administration of the anesthetic was begun. Since in the course of the cycle from his room to operation and return his brain has received no activating stimuli there can be no change in the pulse. No record of the operation has been written either upon the subconscious brain or the conscious brain.

The benefits do not end, however, with the immediate results—the *postoperative hyperthyroidism is prevented or minimized*, and the later clinical results are improved to the same extent as are the *immediate* results (Chart II).

Degrees	98	99	100	101	102	103
Ether.						
N <sub>2</sub> O.						
Anoci.						

Beats	70	80	90	100	110	120
Ether.						
N <sub>2</sub> O.						
Anoci.						

Chart II. Thyroidectomy. The temperature: Each heavy line represents the average 5:00 P. M. temperature of ten patients during the first four days after operation. The pulse: Each heavy line represents the average 5:00 P. M. pulse rate of ten patients during the first four days after operation.

When a case of Graves' disease which is not under surgical treatment is subjected to a severe psychic shock—to a heavy nervous strain or to intense worry—what happens? The disease is aggravated for weeks or for months and not infrequently death results. The evil effects of the stress of facing the operating room are not only seen immediately, but are perpetuated on the following days and weeks and months by their frequent recall. From this handicap the *anoci* patient is free—and by so much is the convalescence speeded on its way.

In carrying out the details of anoci the surgeon must re-educate himself; his assistants must be especially trained; in short, in the patient's entire cycle of entrance, operation and exit there must be no sharp points of contact, either psychic or physical. Those who have had training in local anesthesia will find the details easy. This technique will reach its purpose only if rigidly carried out—if carried out perfunctorily as a dull ritual it will fail.

The use of nitrous oxide while not a necessary part is an important part of the technique of anoci-association. Its greatest value is its protection of the brain cells; but another advantage is the fact that if the local blocking is faulty or the surgeon needlessly rough, the patient retains still the power of offering a much needed self-protection. Then, too, ether definitely diminishes the immunity of the patient—nitrous oxide does not.

#### **What Effect has Anoci on the Morbidity and the Mortality?**

The operation morbidity includes the immediate postoperative pain in abdominal operations, gas pains, painful scars, nervousness, reduced efficiency through want of energy and aseptic wound fever.

*Post Operative Pain.* Quinin and urea hydrochloride wholly prevents pain if it is injected into the entire wound. But quinin and urea causes some edema of the wound, hence one should limit the wound infiltration to cases needing it—e. g., exophthalmic goitre cases—bad risks generally.

*Post Operative Gas Pain.* This baffling phenomenon may be largely or wholly prevented by the technique already described, i. e., by the hypodermic infiltration with quinin and urea hydrochloride of a wide margin of tissue including every part of the divided peritoneum. The stitches must be inserted within the blocked zone. Postoperative gas pain can be explained as a biologic adaptation to overcome infection. In the course of evolution all abdominal penetrations are infected, but the peritoneum is able to overcome most infections if they can be localized. To localize an infection the intestine and the abdominal wall must be kept fixed against each other; that they may do so each must be inhibited; the intestine must be distended with gas, the abdominal muscle must be rigid. If the intestine be distended with gas and fixed then digestion must cease. If digestion be arrested then there is anorrhexia, or even vomiting to expel food from the stomach. This shows us how postoperative gas pains are due to a biologic adaptation to overcome

infection, and explains their resemblance to incipient peritonitis. Nature does not depend upon the surgeon, or perhaps she knows the surgeon too well. The test of this hypothesis is easily made. If the brain through which this adaptive response is made is kept in ignorance of the incision into the peritoneum (a) by progressive novocain blocking throughout the operation and (b) by postoperative quinin and urea blocking to break later communication with the brain through stitch tension, then there should be no gas pains. Clinical experience has abundantly confirmed this hypothesis. It must be remembered that if a single nerve filament escapes the block there will be gas pains.

*Painful Scar.* I postulate that the lesion of a painful scar is in the brain, not in the scar; that it is due to the low threshold produced by injury, and is intimately connected with a fundamental principle of nerve conduction. This fundamental principle relates to the fact that a strong traumatic or psychic stimulus produces some change in the conductivity along its cerebral arc, the effect of which is that of lowering the threshold of that arc. This might be illustrated by the phenomena following a hold-up at the point of a pistol on a certain street corner. For a long time after such a psychic stress any association with that corner would recapitulate the experience. In this manner throughout life various experiences may lower the threshold in innumerable ways. I assume that there is a similar result after a traumatic stimulus. The arc receiving the stimulus suffers a lowered threshold and hence from that time on mere trifles become adequate stimuli. Such a result is seen in the sensitiveness after fractures and in the painful stumps of crushed limbs.

Now, if an operation is so performed that no strong stimulus reaches the brain either during or after the operation, then the threshold of the cerebral arc from the wound will not be lowered. Since the threshold is not lowered, contact with the scar or any injury to that part will have no more effect than will contact with any other part of the body. In other words, the scar will be no more sensitive than is the skin elsewhere. Hence, we see how painful scar may be prevented by complete anoci. Our clinical data seem to support this hypothesis, although it has not as yet been fully worked out.

*Nervousness.* When in the night one is threatened with an unknown danger, the brain threshold is always lowered—apparently as an adaptation to the more swift and accurate detection of the danger. Likewise when one has received a crushing

physical injury there is a universal lowering of the threshold. During these states of tenseness minor stimuli have major effects, or, in other words, one is "nervous."

Now, as we have seen, the subconscious brain is tortured directly during unblocked operations under inhalation anesthesia. The resultant general effect on the brain thresholds is demonstrably the same as if the injury had been inflicted without anesthesia—i. e., after the ordeal of punishment of the subconscious mind during an operation the patient emerges "nervous," "exhausted"—and since a low threshold is lavish in its waste of nervous energy recuperation is slow. Hence there results a period of post operative nervousness—of post operative loss of efficiency. It is obvious—and clinical experience abundantly proves—that the threshold is preserved by complete anoci, hence the unpleasant, damaging post operative phenomena are avoided.

Lastly, let us consider that curious phenomenon—viz: Post Operative Aseptic Wound Fever.

### **Aseptic Wound Fever in Ordinary Cases and the Socalled "Post Operative Hyperthyroidism" in Operations for Exophthalmic Goitre**

Since it is a physical law that any form of force may be converted into heat, and that heat thus produced if not at once transformed into motion, must increase the temperature of the body affected, we see readily why any stimulus, mechanical or physical, which normally would cause increased motor activity must cause a rise in temperature if complete motor expression is impossible. Anything, therefore, that drives the motor mechanism of the body beyond the point of normal expression will cause fever. Anger, athletic contests, fear, physical injuries, all produce a rapid oxidation of certain body compounds too great for complete translation into motion.

In operations under general anesthesia only, we expected routinely to see some post operative rise of temperature as a result of the suppressed power of motor response to the physical and psychical injury; but by the use of anoci-association, both during and after the operation, we discovered a change of post operative temperature and pulse rate. We were therefore forced to the conclusion that, barring infection and the absorption of haemoglobin, post operative fever is the result of increased oxidation, this being in turn the result of the psychic and traumatic

stimuli of the operation to which natural response has been denied.

These observations lead us to a further knowledge of the phenomena accompanying Graves' disease. This disease is due to a disarrangement of the general motor mechanism whereby the threshold of the brain to both psychical and traumatic stimuli has been lowered in varying degree. The stimulus which in the normal individual would cause no appreciable change in pulse or temperature, will, in a case of Graves' disease, drive the brain and body so fast that greatly increased motor activity and a rise in temperature are caused. Anything, therefore, that raises the threshold of the brain to stimuli must diminish the susceptibility to pulse and temperature changes in the patient suffering from Graves' disease as well as in the normal individual. This explains why patients under morphia or in a stupor show little change after excitation, and why an operation performed under anoci is followed by diminished or no aseptic fever and in Graves' disease by no so-called "hyperthyroidism."

With these conceptions a surgical operation takes on a new meaning. It becomes a game of biologic chess. The patient never makes the first move, but through the subconscious brain, counters. The many countermoves of the subconscious brain can be clearly seen and appreciated in changes of the respiration and the pulse, in muscular contractions, in the alteration of muscular tone, in vasomotor changes and in pupillary reactions. All of these are responses just as purposeful as the protesting cry or the spoken word of the equally injured but unanesthetized man. When anoci is carried out perfectly no symbolic protest is made; no change in the threshold is made; no expenditure of nervous energy is made. We must re-educate ourselves so that we can hear the unspoken word;—can see the motion in the unmoved muscle. We must practice not mechanical surgery, but biologic surgery.

We have now stated the kinetic theory of shock and on it have formulated an operative principle (anoci-association), the practice of which enables the surgeon to perform shockless operations. Before stating the clinical results we will discuss more fully certain points and objections to the method.

The first point is the choice of the inhalation anesthetic and of the anesthetist. As to the anesthetic, choice lies between the lipoid solvent anesthetics such as ether and chloroform, and nitrous oxide.



Ether anesthesia has certain advantages. It is relatively safe in inexperienced hands; its bulk is small, it is inexpensive, and requires the simplest apparatus for administration. Against ether stands the malodor; the choking sensation in going under its influence; the drunken nausea sensation when becoming conscious again; and the fact that the dose required to dissolve the lipoid in the brain sufficiently to cause anesthesia also dissolves the lipoid in the liver, the kidney, the red blood corpuscles, and other important structures. Ether also chemically hinders or prohibits phagocytosis—hence in addition to anesthesia this powerful chemical solvent may produce nephritis, pneumonia, anemia, and many other tissue impairments; besides, in the presence of infection, ether arrays itself on the side of infection against the patient. We have already referred to the sense of irritation and suffocation when going under the influence of ether. This is probably the meaning of the "stage of excitement," because the feeling of suffocation is one of the most powerful brain stimulants.

These objections led us to turn to nitrous oxide, an anesthetic pleasant to take, devoid of baneful after results, and serving as a measurable protection against shock. Against nitrous oxide we found four disadvantages:

1. Its expense.
2. The insufficient muscular relaxation produced.
3. The difficulty of its administration.
4. Its lack of safety in unskilled hands.

If it can be shown that the technical difficulties of nitrous oxide administration can be overcome; that relaxation can be secured and the mortality and the morbidity can be diminished by its use in connection with local anesthesia or in certain cases with the addition of ether,—then all other questions become ethical issues with the surgeon and the hospital.

If relaxation is incomplete under nitrous oxide alone, then this lack may be met by several minutes of ether administration, or by the addition of a little ether with the nitrous oxide until relaxation is complete.

Let us now turn to the frequently-made objection that nitrous oxide in unskilled hands is dangerous. This criticism can be made only by those who wish to advocate filling one of the most critical posts at an operation by untrained hands. This too, calls for ethical, not scientific discussion. The question rather is this: Is nitrous oxide a safe anesthetic in skilled hands?

That question can be answered to this extent—that four skilled anesthetists have administered nitrous oxide for surgical operations over 18,000 times without an anesthetic fatality. In unskilled hands I am equally sure nitrous oxide is not safe. The results in untrained hands might be comparable to those of the operation itself if the newest hospital interne were to perform major abdominal and neck operations on his first day of service.

Just as some communities have been terrified by needless surgical disasters, just so will some communities be terrified by equally needless anesthetic deaths from nitrous oxide, probably the safest of all anesthetics when skillfully given.

The disadvantages of nitrous oxide are almost wholly technical and can be mastered, while the disadvantages of ether are almost wholly chemical, hence not controllable. As already stated, the chemical—hence uncontrollable—disadvantages of ether are: Its solvent power over various highly organized fats, such as lecithin in the red blood corpuscles, in the liver cells, kidney cells, and of course in the brain cells; and its harmful action in impairing or destroying the immunity of the patient. In close risks with acute infection ether alone may cause death.

The principle of *anoci* offers a partial solution of this difficulty in the use of ether anesthesia which is so satisfactory to the surgeon—so unsatisfactory to the patient. If the field of operation is blocked, then only just enough ether need be given to hold unconsciousness, and so the chemical damage may be reduced quantitatively to the minimum. *Far better this combination than nitrous oxide in any but safe hands!*

By the introduction of nitrous oxide we have added slightly to the surgical burden. The use of one kind of local anesthetic for the immediate effect and of another for the later effect in addition to inhalation anesthesia adds a little more to the burden; the training of the nurses and of the resident staff adds still a little more—in short, the surgical service, and especially the surgeon himself, must undergo a certain amount of re-education or at least must gain a new viewpoint. Should the burden of the surgeon be thus increased? Here again it seems to me the question rather is this: Is it better for the patient? If the morbidity and the mortality are decreased, then this question too becomes one of good or bad conduct—of duty. To answer from any other than the patient's viewpoint is the same as if on the morning of a vitally important operation the surgeon were to put to his patient in words the thought that had been in his

mind—viz: "You are about to undergo a dangerous operation. I could lessen the danger by one half, and could prevent most of your after suffering, but because I am too busy a man to bother with the details that would accomplish this you must take the double chance of suffering and death."

The foregoing is a summary of a large clinical experience and more than 1200 experiments on animals, most of the data of which have been published in detail in five monographs. It is hoped that more monographs of data will be published during this year. We have shown that shock may be produced by physical trauma with or without inhalation anesthesia; that those parts of the body having the greatest number of nociceptors and which defend the most important regions by muscular action are the most shock-producing on receiving trauma. In the distribution of the defending nociceptors we have a brief epitome of our phylogenetic struggle for existence. We have shown that nitrous oxide anesthesia as compared to ether anesthesia is a protective agent against shock—protective through its interference with the use of oxygen by the brain cells—on the same principle as the action of a chemical fire extinguisher. We have shown that the physical exhaustion and the brain cell changes are due to an adaptive response of the brain to the injury—a silent motionless effort to escape from the physical injury of the operation; that if the field of operation is blocked with local anesthesia or if the nerve connection between the brain and the injury is blocked, physical injury can cause no shock. We have shown that the motor mechanism may be powerfully driven by psychic stimuli—perhaps as powerfully as by traumatic and physical exhaustion and that corresponding brain cell changes are produced. We have seen that if both the traumatic and the psychic stimuli are excluded shock cannot be produced. We have offered evidence that these physical changes in the brain cells are not produced by alteration in the gases in the blood or by metabolic processes from the shock-producing psychic or traumatic stimuli. We have shown that the brain cell changes are not due to anemia from lowered blood pressure alone. Hence we are forced to conclude that shock is an exhaustion phenomenon due to the driving of the motor mechanism by adequate stimuli, and that it is expressed by physical exhaustion and brain cell changes.

### Clinical Results

We have now presented the theory of shock and a technique by which it may be prevented; but no theory is worth more than its yield in practice, and the only test of laboratory findings is the crucible of the clinic.

The clinical results here reported have been confirmed by the personal experience of Bloodgood, Cabot and a number of other American surgeons. The accompanying charts show the results of a critical study of the clinical data of parallel series of operations performed at the Lakeside Hospital—the last group of operations under ether alone, under nitrous oxide alone, and under anoci. Were it possible to express the subjective sensations of the patient the contrast would certainly be even more striking. There is no longer need of a postoperative recovery room. The work of the nurse is greatly minimized and the clinical aspect both in and out of the operating room is altered. My associate Dr. W. E. Lower, and I during the past year performed 729 abdominal sections of every grade with a mortality rate of 1.7%; and in the Lakeside Hospital service where all kinds of acute emergencies are met, and where most of my own private work is done, there was performed by my associates and me in the past year operations on 2,672 patients with a mortality rate of 1.9%—a result never before approached in the Lakeside Hospital. In the last 1,000 operations performed by my associate, Dr. W. E. Lower, and myself—these operations including every risk of a general surgical practice—the mortality rate has been 0.8%.—(Chart III.)

Death rate	%	1	2	3	4	5	6	7
per 1000	1908							
	Least 1000 cases							

Chart III. Mortality rate of operative cases from Lakeside Hospital, the last 1000 under anoci-association.

**Harvey Society.**—The lectures of the Harvey Society for the coming winter include among others, Prof. A. D. Waller, London; Prof. Adolph Schmidt, Halle, Germany; Dr. Charles V. Chapin, Providence, R. I.; Dr. Rufus Cole, Rockefeller Institute; Prof. G. H. Parker, Harvard; Dr. Victor C. Vaughan, Ann Arbor, Mich.; Prof. Sven G. Hedin, Upsala, Sweden, and Prof. J. J. R. Macleod, Western Reserve University, Cleveland. The course will be inaugurated on October 4 by a demonstrative lecture by Dr. Waller, entitled "A Short Account of the Origin and Scope of Electrocardiography."

## Tumors of the Carotid Body with Report of Two Cases

By ALLEN GRAHAM, B. S., M. D., Surgical Pathologist to the Lakeside Hospital, Cleveland

The first accounts in the literature of the carotid body we owe to Haller, who in the middle of the eighteenth century often found a "ganglion exiguum" situated in the bifurcation of the carotid artery. It was more carefully described by Andersch, who thought it to be a nerve ganglion and named it "ganglion intercaroticum." The first microscopic studies were made by Luschka, in 1861. He came to the conclusion that it was not a ganglion in the ordinary sense but a glandular organ closely related to the sympathetic system. He named it the "glandula carotica" and considered it a nerve gland in the same sense as the adrenal medulla, the hypophysis and the coccygeal gland. Arnold gave first importance to the great vascularity of the organ and interpreted the glandular elements of Luschka as a glomerulus-like network of blood capillaries and hence named it "glomeruli arteriosi intercarotici." Up to that time interest in the carotid body had been almost wholly anatomical.

Koelliker and Stieda from embryological studies thought they had located the *anlage* for the carotid body in the third branchial cleft and hence it was of epithelial origin. Katschenko on the other hand could find no evidence of the branchiogenic origin but considered a thickening of the primitive carotid body to be the *anlage* of the carotid gland and hence was of mesothelial origin. It was, however, in close relationship with the carotid plexus and superior cervical sympathetic. These observations have since been confirmed by a number of writers, among them Marchand, Paltauf, and others.

This view prevailed until Stillings discovered the presence of chromaffin cells in the carotid gland. The presence of these, together with the great amount of nerve tissue and the very intimate relationship with the sympathetic, made Stillings class the carotid gland with the sympathetic system, hence the designation "paraganglion intercaroticum."

The only pathological lesion thus far described is a characteristic tumor. These tumors have been remarkably similar anatomically and pathologically and have conformed in a remarkable degree histologically to the normal carotid gland. Marchand (1891) was the first to describe one of these tumors and Paltauf

the next year reported four others. Since then the number has increased so that Keen, in 1906, could collect twenty-six cases from the literature and added one of his own, all operative specimens. Two cases had been observed at autopsy. We agree with Kaufman and Rappner that three cases reported by Gillford and Davis in *The Practitioner* (1903), under the caption "Potato Tumors of the Neck," and which Keen includes in his list of cases, should be excluded as they differ in several important details from the rest of the recorded characteristic tumors of the carotid gland. Also a case reported by Wooley and Fee in the *Bulletin of the Johns Hopkins Hospital* (1912) can hardly be considered a tumor of the carotid gland.

Since Keen's article several cases have been reported so that up to 1913 we can find in the literature thirty-five operative cases and three observed at autopsy. The two operative cases reported below we believe to be the 36th and 37th in the Literature, as follows: Marchand, 1 case; Paltauf, 4; Monckeberg, 3; Kaufman, Kopfstein and Green, 2 each; Kretschmar, Malinowsky, v. Heinleth, Sinouschine, Scudder, Cuneo and Dainville, Reclus and Chevassu, Macphatter, Funke, DaCosta, Keen, Cook, Rivet, Zondek, Cathcart, Douglas, Licini, Chiari, Dobromysloff, 1 each; one case of Middleton and Behring, mentioned by Keen (not reported); one case of Coley's mentioned by Douglas (personal communication). These have all been operative specimens. Three cases observed at autopsy: Hedinger, Oberndorfer and Beitzke one each.

The following two cases were operated by Dr. G. W. Crile at the Lakeside Hospital and were presented before the American Association of Pathologists and Bacteriologists, which met in Washington May, 1913:

Case I. Surg., P. W. S. No. 2470. C. S., clerk; single; age 27; admitted to the Lakeside Hospital Oct. 8, 1906, complaining of a tumor of left side of the neck. The family history was negative; he had had the usual diseases of childhood including scarlet fever; otherwise he has been in perfect health except for an accident 14 years ago when he lost his right arm. The tumor was first noticed 10 years before admission. It was located on the left side of the neck, directly opposite the larynx; it caused no pain or discomfort, and was discovered accidentally; it was not visible at first, but palpable; about this time he had severe headaches, limited to the right side; he would suffer with his eyes, the left becoming inflamed and the pupil very irregular. These attacks would last four or five hours, and he would have eight to ten attacks a year at one or two months' intervals and always occurring before 9 A. M.; he would be nauseated and feel numb about the lips and throat. The tumor increased gradually in size, with more rapid growth for about six weeks before admission, during which time he has been having sharp shooting pain radiating to the left ear.

Operation: Oct. 9, 1906. An incision made down to tumor, which was found to be in the bifurcation of the carotid and completely surrounding the three vessels, making their ligation a necessity in order to remove the tumor, which was very vascular, a great many ligatures were required to control the hemorrhage. The recurrent laryngeal and superior sympathetic were divided; the vagus was adherent to the posterior capsule and had to be removed; the hypoglossal was adherent and considerably deflected from its course but was not injured. The patient lost considerable blood and was in shock when put back into bed; the pulse was 140; there was considerable mucus and the breathing was stertorous. The next day the patient's condition was improved; it was noticed however that the left pupil was contracted and the left eye-lid paretic; there was marked hoarseness. Ten days after the operation a definite weakness of the left calf muscles and arm developed but cleared up in three days. There was slight febrile reaction following the operation and lasting about five days.

The patient was discharged Oct. 29, 1906. He was seen recently by Doctor Crile, six and one-half years after operation, and there is no sign of recurrence.

Pathological report: P. W. S. 1052. The specimen consists of a tumor mass situated in the bifurcation of the carotid artery (Fig. 1.) and completely surrounding the common, external and internal carotid arteries; it measures 5 x 4 x 3 cm; the surface



Fig. 1. Case I. Below, the common carotid artery, which divides above, within the tumor, into the external carotid on the left and the internal carotid on the right.

is lobulated; the mass is firm, elastic, and has a rather thick, loose fibrous capsule. At the lower pole a vessel (common carotid) 5 mm in diameter enters the tumor; at the upper border two vessels (external and internal carotid arteries) emerge from the tumor. The cut surface at present, having been fixed in 10 per

cent formalin and preserved in 80 per cent alcohol, has a more or less spongy appearance, grayish brown in color, with fine bands of pearly hyaline fibrous tissue running into the tumor from the capsule and giving it a lobulated appearance. Numerous pinpoint to pinhead sized spaces may be seen throughout the whole cut surface. Section through the large vessels shows the tumor completely surrounding the carotid arteries; the common, internal and external are imbedded in the tumor; respectively 1, 4, 3, and 2.5 cm; the latter two are separated 2 cm where they emerge from the upper border. The intima of all three vessels is smooth and glistening; no branches are given off from the common or internal carotids, while three rather large branches enter the tumor from the external carotid, one near the bifurcation and two near the upper pole of the tumor. The portion of the tumor situated in the bifurcation seems softer than the more peripheral zones.

Microscopic: Sections through the peripheral portions of the tumor show a rather thick, loose, though in places dense, fibrous capsule (Fig. 2, a) containing numerous quite large

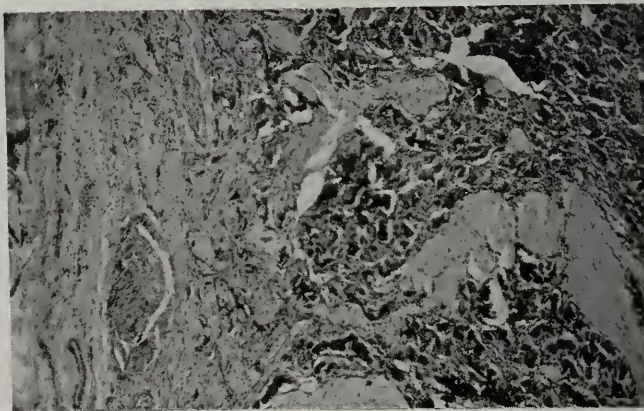


Fig. 2. X425. On the left the fibrous capsule, which contains in its deeper layer a nonmedullated nerve trunk. Running from the capsule into the tumor tissue are dense, hyalin trabeculae.

bundles of nonmedullated nerve tissue (b) and a few strands of wavy elastic tissue; a considerable amount of hyalin in the fibrous tissue makes the latter appear homogeneous and take a diffuse pink stain; the nuclei are few in number and elongated; there are quite a few small collections of lymphoid and plasma cells and a few leukocytes scattered through the capsule; from the latter heavy bands or trabeculae (c) enter the tumor and divide it into lobules. These trabeculae are to be met throughout the tumor as longitudinal and transverse sections of dense, homogeneous, hyalin, pink staining masses of variable thickness, in some



instances taking up almost the entire low-power field of the microscope and having a few compressed spindle and wavy nuclei; these areas resemble somewhat the hyalin trabeculae of a spleen. In the central portion of the tumor, dilated thin-walled capillaries can be seen in the trabeculae. The lobules vary greatly in size, some being larger than the low-power field of the microscope, while others are represented only by narrow strands of cells compressed by the dense trabeculae (Fig. 3).

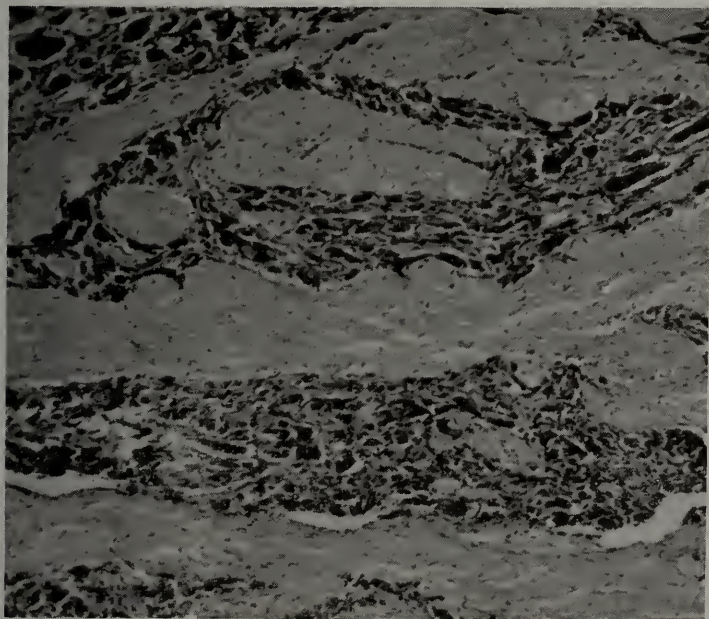


Fig. 3. X79. Dense, hyalin trabeculae separating the compressed, elongated tumor lobules.

The lobules are composed of alveoli which are limited by thin-walled capillaries, in most instances only a single layer of endothelial cells, many of them containing red blood cells; occasionally one may find a few strands of hyalin connective tissue accompanying the capillaries in among the alveoli but never entering the latter. The alveoli are filled with epithelial-like cells, or probably more correctly, with a mass of finely granular, acidophilic protoplasm in which are a variable number of large, round, oval or spindle shaped nuclei taking a deep blue stain. In most of the alveoli, cell membranes cannot be made out, the appearance being more that of syncytium (Fig. 4) or large multinucleated giant cells; occasionally, in the less dense portions of the tumor, isolated cells may be found and appear as large polygonal cells with relatively small nuclei, usually eccentric and varying greatly in number (10 to 100), size, shape and intensity of staining. In the less compact portions of the tumor, alveoli

may be found in which the nuclei are fairly uniform in size, shape and staining; they are then more round or oval, with well defined cell outlines and take a uniform deep blue stain. In

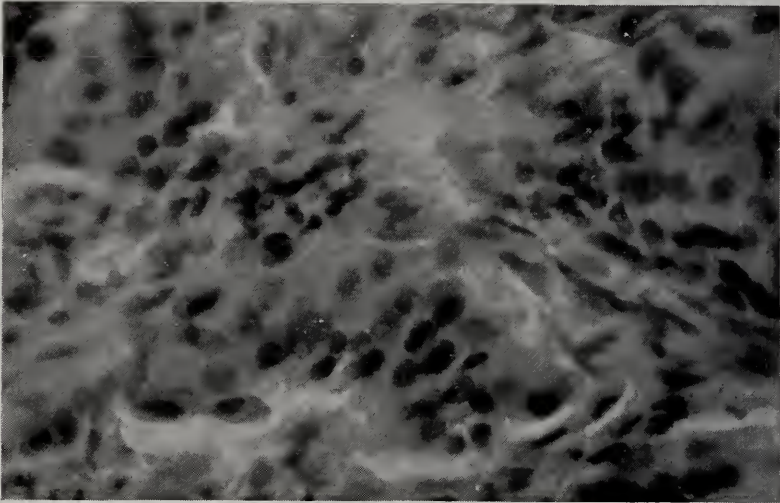


Fig. 4. X500. Below, occupying the greater portion of the middle of the field, a fairly well defined multinucleated, syncytial giant cell; above this a capillary runs transversely through the field.

the more compact portions the nuclei tend to be more spindle shaped and vary greatly in staining reaction, some being intensely blue, others very light with a fine granular chromatin network easily made out. Numerous very large irregular nuclei may be seen, notably in the denser portions of the tumor; these appear to be undergoing direct division. Mitotic figures are not seen.

In numerous areas may be seen in the stroma, between the alveoli, collections of cells containing a finely granular, yellowish brown pigment (blood pigment).

In all the sections are one or more fields in which may be found bundles of nonmedullated nerve tissue, sometimes only a small island and at other times as large as one-quarter of the low-power field. In most instances this is found on the border, between the trabeculae and the tumor cells of the lobule, but occasionally it may be seen running through the latter. Nowhere have I found definite ganglion cells and of course the chromaffin reaction is not to be expected on account of the formalin fixation.

Case II. Surg. No. 22108. G. H. F., car inspector; single; age 27; admitted to the Lakeside Hospital March 12, 1913, with a diagnosis of tumor of the right tonsil. The family history is negative. He is subject to colds; he had an influenzal infection one year ago, lasting two weeks; he had a chancre seven years ago; he received treatment one month; the primary lesion disappeared; there were no secondary symptoms and no subsequent antisyphilitic was received until recently, when he had one dose of salvarsan. The present trouble was first noticed seven years ago, one week after the appearance of a chancre; he had a sore throat

which was thought to be syphilitic; it was at this time that the tumor mass was discovered in the throat; it has not increased much in size since that time; it caused no pain and there was no difficulty in breathing or swallowing; antisyphilitic treatment at the onset and one dose of salvarsan since had no effect on the tumor mass.

**Physical Examination.** The patient is well developed and nourished; the face and eyes appear normal. The pupils are equal and react to light, but are sluggish to accommodation; they are centric and regular; no ptosis or ocular palsies. The throat shows a large hard tumor mass completely filling the right tonsillar fossa and encroaching upon the uvula. Externally a swelling is noticed extending from the lobe of the right ear down to the angle of jaw. This is smooth, round, about the size of a small egg; it is slightly movable from side to side but not up and down. The right submaxillary glands are enlarged; post cervical glands not palpable; no evidences of acute inflammation. Heart, lungs and abdomen are negative. There is an old scar 1 cm in diameter on the prepuce. A clinical diagnosis of sarcoma of the tonsil was made. A specimen was removed from the tonsil for microscopic examination; this showed chronic inflammatory reaction but no evidence of tumor.

**Operation:** March 18, 1913. Oblique incision in the right side of the neck. The sternomastoid was divided half way down to the clavicle;

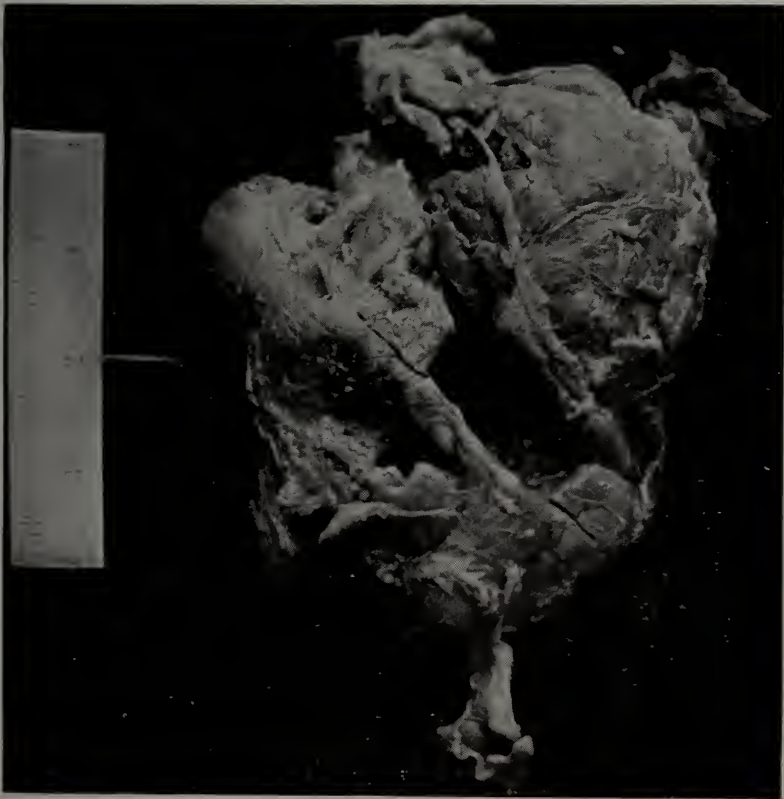


Fig. 5. Case II.

partial dissection of the glands from this point upward. A portion of the internal jugular was removed and the external carotid was ligated. Dissection carried up behind the angle of the jaw and the tumor removed in this way. There was considerable hemorrhage requiring many ligatures. A portion of the vagus was resected; the hypoglossal was seen but not injured; the facial artery was divided. Following the operation there was considerable mucus in the throat, which patient had great difficulty in getting rid of; hoarseness was marked; the right pupil was contracted and very irregular; irregular febrile reaction lasting two weeks

with indefinite signs of bronchopneumonia in the right lung. The patient was discharged April 16, 1913, hoarseness and irregular, contracted pupil still present.

Pathological report: S. P. No. 9872. Unfortunately the tumor was preserved in 10 per cent formalin only. Specimen received in the laboratory in two pieces, one consisting of a portion of sternomastoid muscle and cervical lymphatic glands which show nothing of special pathological interest; there is a portion of nerve trunk 2 cm long and 3 mm in diameter, probably vagus. The other portion of the specimen consists of an irregular, lobulated, encapsulated tumor mass 5.5 by 4.5 by 2.5 cm (Fig. 5). It might be described as triangular in shape with the apex corresponding to the lower pole, which is somewhat rounded; the base of the triangle corresponds to the upper border of the tumor. Each lateral border presents a shallow groove which extends about two-thirds the distance from the apex toward the base and which converge almost to a point of union at the extreme lower pole; these grooves represent the beds of the external and internal carotid arteries. The superficial surface is more rounded and lobulated than the deeper surface. The upper border, which was in close relationship with the base of the skull, is rather ragged. The tumor has a thin, loose, fibrous, capsule; it is dark, reddish brown, hemorrhagic in appearance. It is soft, cuts easily and the surface bleeds freely. The cut surface is very vascular, reddish or brownish gray in color, finely lobulated or alveolar in structure, due to the fine fibrous tissue trabeculae running into the tumor from the capsule and giving to it the finely alveolar appearance. Vessels from the capsule enter the tumor with the fibrous tissue. From the gross appearances one is reminded of a hemangioma or an angiosarcoma.

Frozen sections stained with polychrome methylene blue showed an exquisitely alveolar tumor, the alveoli being filled with large round or polygonal cells with well defined, deeply staining nuclei; the tumor was very vascular. A diagnosis of alveolar sarcoma was made. The tumor was fixed in 10 per cent formalin, imbedded in celloidin and paraffin, stained with hematoxylin and eosin, Weigert's modification of the Van Gieson stain, polychrome methylene blue and by Bielchowsky's method for nerve fibrils.

Microscopic: There is a thin, loose, gauzy, fibrous capsule in which are numerous blood-vessels, both veins and arteries, and a few medullated and nonmedullated nerve trunks. There are also a few collections of lymphoid and plasma cells. From the

capsule bands of fibrous tissue run into the tumor and divide it up into lobules; in these trabeculae are numerous thick-walled blood-vessels which give off branches to the various lobules and finally break up into thin walled capillaries which divide the lobules into alveoli. In certain portions of the tumor these vessels may be seen as large, irregular, dilated, endothelial lined spaces (Fig. 6), some of which contain a few red blood cells.

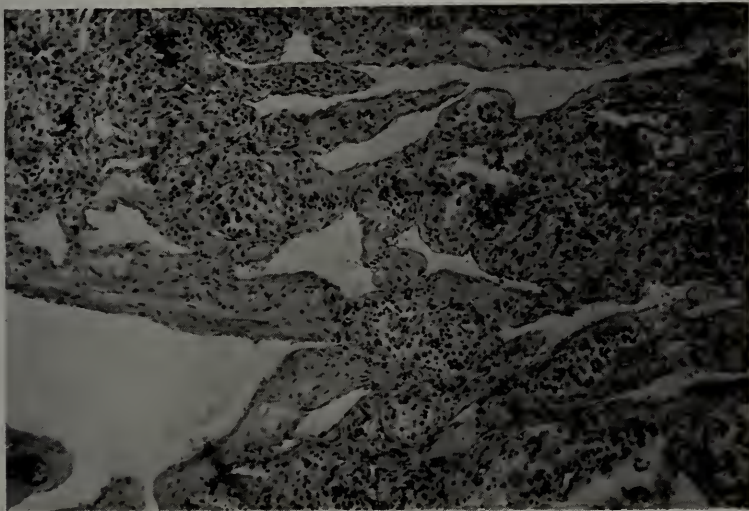


Fig. 6. X79. Cavernous endothelial lined blood spaces in the tumor tissue.

In some fields these spaces are so prominent as to give the appearance of a cavernoma. The vessels accompanying the fibrous trabeculae from the capsule have well defined coats, veins being much more numerous than arteries. Most of the arteries show slight hyalin change in the adventitia and slight thickening of the media; the intima shows very little if any change.

The trabeculae are very poor in nuclei and appear rather hyalin, taking a rather diffuse deep pink stain in Weigert Van Gieson preparations. The fibrous tissue appears as rather thick bands between and in the lobules, accompanying the small capillary vessels and may be found completely surrounding some of the alveoli but not entering the latter.

In the fibrous trabeculae of some of the sections are occasional bundles of medullated and nonmedullated nerve tissue. In one portion of the tumor about 1 cm from the capsule is a mass of nonmedullated nerve tissue (Fig. 7), a little larger than the low-power field of the microscope, in which are fourteen very large, round cells with coarse granular protoplasm and a well defined, pale, oval nucleus with a rather large, intensely blue stain-

ing nucleolus; these cells are surrounded by a single layer of cuboidal cells with well defined, pale, oval or round nuclei containing usually two small nucleoli. This is doubtless a sympathetic ganglion, probably an inclusion by the growing tumor. This tissue appears to be of adult type and not a new formation or an integral part of the tumor.

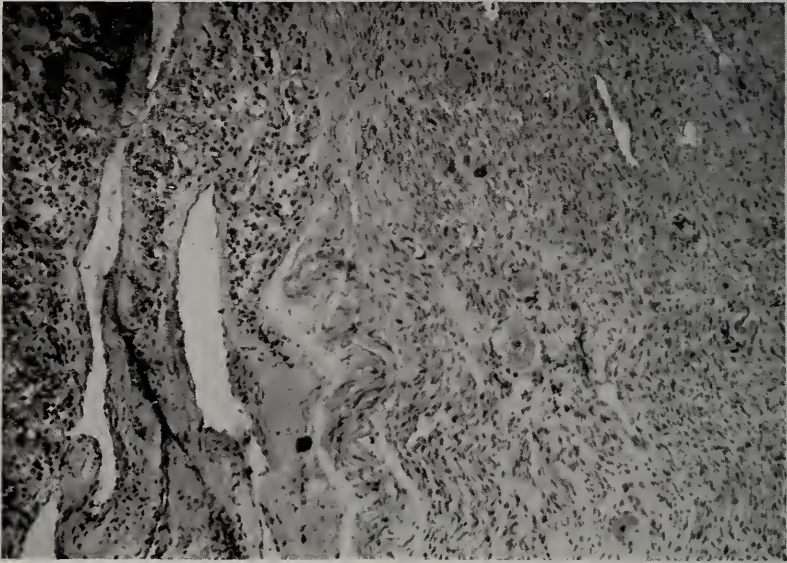


Fig. 7. X79. Tumor tissue with its cavernous spaces on the left, nerve tissue with ganglion cells on the right.

The characteristic of the tumor is the lobule composed of alveoli filled with tumor cells. The lobules are formed by trabeculae of fibrous tissue, continuous with that of the capsule, which supports the larger arteries, veins and nerve tissue. From the interlobular vessels branches enter the lobules, dividing them up into alveoli which are limited by small arterioles and a slight trace of hyalin stroma, or in many instances by capillaries only with a single layer of endothelial cells. The endothelium is sometimes flat, sometimes considerably swollen; most of the capillaries are empty, though many contain a few red blood cells. There are two distinct types of cells in the alveoli.

Type A (Fig. 8) is a large cell with a relatively small amount of protoplasm and a relatively large, pale, round or more frequently oval or even spindle shaped nucleus which has a finely granular chromatin network and one, two or three small nucleoli. The protoplasm is finely granular and slightly acidophilic. These cells vary greatly in size, the nuclei being from one to three or four times as large as a red blood cell, while a few may be even larger.

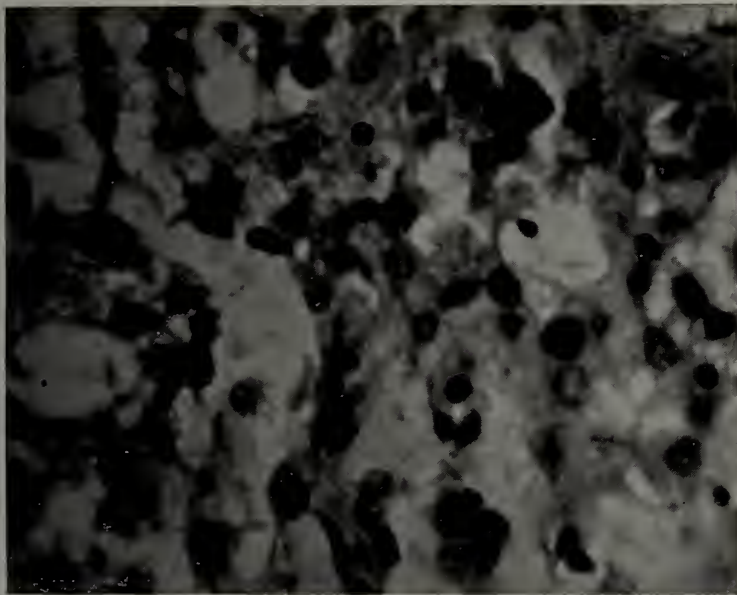


Fig. 8. X500. Cells of type A, with relatively large, vesicular nuclei, predominate.

Type B (Fig. 9) is of about same size as A, with a relatively large amount of protoplasm, which is more homogeneous, and a relatively small, usually round or oval, very intensely staining nucleus in which details as to chromatin and nucleoli cannot be made out.

The relative proportion of these two types of cells is very variable. In some fields type A predominates (Fig. 8), while in an adjacent field type B predominates (Fig. 9); in still other fields they are equally numerous; they may be intimately intermingled or each may be arranged in groups. Mitotic figures are not seen but evidence of direct division is abundant.

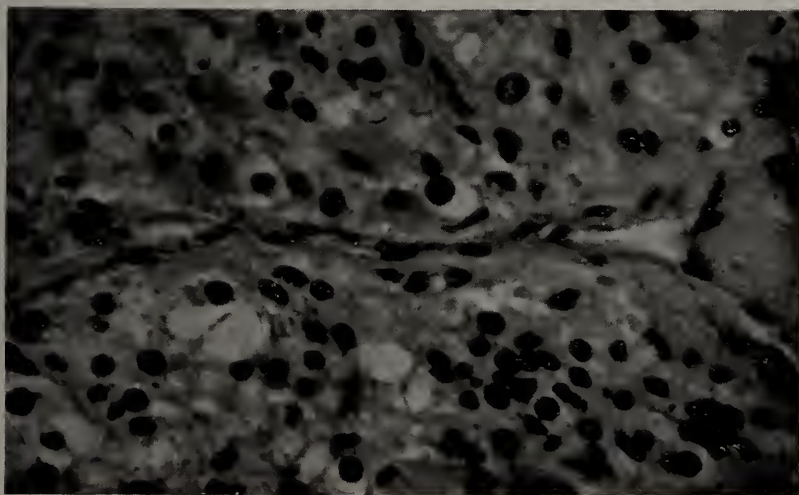


Fig. 9. X500. Cells of type B, with relatively small, deeply stained nuclei, predominate. A capillary runs horizontally through the field.

These two types of cells fill the alveoli, are closely packed and are without intercellular stroma. They rest either directly upon the endothelial lined capillaries (Fig. 9) or, in the case of the larger arterioles, upon the slight hyalin stroma accompanying the vessels. In some areas the protoplasm seems to be very vacuolated (Figs. 8 and 9) and there seems to be a protoplasmic network in which the nuclei are found, thus presenting the appearance of a syncytium in which the individual cell outlines cannot be made out.

It will be seen then that these two tumors correspond clinically, anatomically and histologically very closely to the other tumors of the carotid gland reported.

We shall not enter into a discussion of the exact nature of these tumors (whether they should be classed with the peritheliomata, endotheliomata, angio, or alveolar sarcomata, or whether they are tumors of the sympathetic nervous system) inasmuch as the embryological origin of the carotid body itself is not settled and more definite light is needed upon this point before these tumors can be definitely classified. Most of the investigators have considered the carotid gland an organ of mesothelial origin while a few, notably Stillings and Kohn, think it should be classed with the adrenal medulla as belonging to the sympathetic nervous system. If it originates from embryonal ganglion cells as held by Kohn, it seems to us strange that none of the forty reported cases have been definitely nerve cell tumors. The amount of nerve and chromaffin tissue in these tumors, judging from the literature and the two cases here reported, may, we believe, be accidental.

Summary: Of operative cases there have been thirty-five in the literature, the two above reported making a total of thirty-seven. Three tumors have been found at autopsy.

Of thirty-six cases in which the case reports are complete enough there are the following data:

Sex: 19 males; 17 females.

Age: youngest, 7; oldest, 63; average, 36.

Vessels ligated: all three carotids, 22 times; external carotid only, 5 times. Tumor removed without injury to vessels, 7 times.

Nerves injured: Vagus, 6 times; Hypoglossal, 8 times; Sympathetic, 4 times.

Hemiplegia occurred 5 times; 4 lived; 1 died. Cerebral hemorrhage, one case with recovery.



Recurrences: 4 cases; 3 after ligation of the external carotid only with removal of the tumor; 1 after removal of the tumor only. Two cases recurred within one year; 1 within four months; 1 within two months. Two recurrences were operated; ultimate result not stated.

Mortality: Immediate: Pneumonia, 2 cases. Hemorrhage and shock, 3 cases. Hemiplegia, 1 case. Late: One case nine weeks after leaving hospital, from cerebral hemorrhage. One case after one year from recurrence.

We wish to acknowledge our indebtedness to Dr. O. T. Schultz for the photomicrographs.

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## A Contribution to The History of The Magnet as Applied to Ophthalmic Surgery

By H. G. SHERMAN, M. D., Cleveland

No class of cases presenting themselves to the oculist cause greater anxiety than those giving a history of an impaction of a foreign body in the tissues, or a penetration and a lodgment of the same within the chambers of the eye.

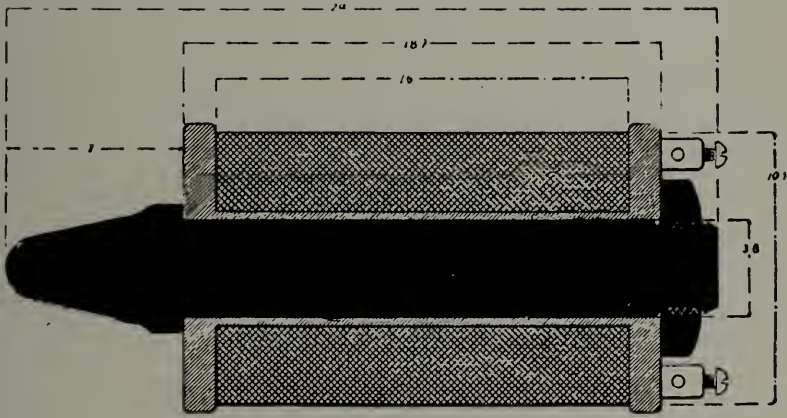
It nearly always happens that the point of lodgment of a foreign body is difficult to make out owing to hemorrhage or swelling. Should a foreign body be lodged in the tissues of the eye or its chambers it is of the gravest concern, for we know with almost absolute certainty that sooner or later an iridocyclitis or an iridochoroiditis will supervene, with probable loss of the eye in case the foreign body cannot be safely extracted.

We are greatly concerned in regard to the integrity of vision of the other eye in case of violent inflammatory reactions occurring in the injured eye, therefore any means which will aid in the certain diagnosis of the presence of a foreign body within the eye and aid in its removal is heralded with satisfaction. I beg to cite the following case:

Miss Kate W., Warren, O., aged eighteen years, was seen in consultation with Dr. T. M. Sabin, June 22, 1894. Inquiry revealed that while working at a machine polishing bamboo filaments for incandescent lamps, a portion of the machine suddenly broke. Patient stated that she thought a foreign body struck her in the eye, as immediately following the accident she experienced acute pain in the eye and a trifling hemorrhage was observed by her mates. Dr. Sabin gave her a boric-acid solution and assured her that nothing serious had happened. Next day, however, there were a marked circumcorneal injection and considerable pain. This continued in various degrees for a period of two weeks, the doctor in the meantime giving her such remedies as would allay the pain temporarily.

Two weeks after the injury I saw her. A careful inspection of the eye exhibited no condition that suggested the entrance of a foreign body, and an ophthalmoscopic examination showed no disturbance within the eye chambers.

After a few days' observation, the redness and pain subsiding, the girl was sent home; a week later she returned with the aforesaid symptoms greatly aggravated. In doubt as to the causative factor, I requested Mr. J. W. Packard, of the Packard



Cross-section of magnet.

The Sherman Magnet as described on page 551.



Lamp Company, to cause a thorough examination of the broken machine to be made. He reported that the point of a pin connecting two upright rods was broken off, and, assuming the possibility of it having penetrated the eye, the only positive means of determining its presence in the absence of ophthalmoscopic evidence was by a magnet.

The only available magnet was a small one devised by Gruening. A thorough application of the magnet, however, failed to disclose any response, and the girl continued to suffer severe pain at times, although no marked inflammatory reaction or impairment of vision obtained. Passing a blunt probe over the eye, under slight cocainization, I found at the point of the original redness a sensitive area, and concluded that a foreign body must be lodged in the ciliary region.

I consulted Mr. Hammer, General Manager of the Brush electric light plant, and requested that he make a magnet for me sufficiently powerful to determine positively the presence of a responsive body in the eye. He directed his chief electrician, Mr. Adams, to construct a magnet after a design made by Mr. Ryder, of the University School, along lines which I indicated. The magnet consisted of a bar of soft Norway iron, 18 inches long and 3 inches in diameter, wrapped with hundreds of feet of fine copper wire, properly insulated. This magnet was energized by the current from the street supplying the arc lamps, and, by means of a transformer and a rheostat consisting of 30 coils of iron wire, the voltage was sufficiently reduced to make it safe for the experiment in hand. The traction was greatly increased by an armature of iron connecting the two poles.

The patient's head was brought within six inches of the magnet, the current was turned on, causing her to throw her head backward suddenly, complaining of a sharp stinging pain, assuring the presence of a piece of iron or steel.

I had not thought of removing the foreign body except by incision, the demonstration having been made for the purpose of diagnosis only.

At 6 o'clock on the day of the magnet trial I was called to the hospital and found the girl complaining of a pricking sensation under the lower eyelid. In drawing down the lid I observed a black point projecting through the sclera, partially penetrating the conjunctiva. A slight incision was made over the point and the piece of steel was withdrawn by means of an ordinary dressing forceps. I am happy to state that the girl was sent home at

the end of the week with unimpaired vision and no further embarrassment whatsoever.

I may be pardoned for reporting this case in detail, because it has to do with the development of a magnet which exhibited a greater traction force than the Haab (which was unknown to me at the time), probably owing to the larger wire and greater number of ampere turns about the coil, and also the larger point which conserved the magnetic lines of force, the strength of a magnet being proportional to the ampere turns, provided the iron core is not saturated. On becoming saturated there is no increase of magnetic traction by increase of voltage.

The recent volume of "Graefe and Saemisch's Handbuch" covers the field of magnet development practically completely. It is interesting to note, however, that no mention of this magnet is made either in the article referred to or in any literature pertaining to this subject, notwithstanding the fact that the design of the magnet and the case I am now reporting were published in the *Medical Record* in 1895, volume 48, page 212. I feel that it is eminently proper that a record of this magnet should be entered in the proceedings of this Society for its value as historic data.

It is not my purpose in this paper to refer to the various types of magnets and the advantages claimed for each, nor to discuss the comparative results of magnetic extraction by the various methods employed. Magnetism was known to the Greeks centuries ago. Bars of iron magnetized, hand magnets and others dependent upon batteries have been employed for many years.

It would be interesting to take up the various questions of polarity, weight, force, and the magnetic field if time permitted. It is interesting to note, however, that there is no advantage in a large magnet, as the particles of iron or steel penetrating the eye are so small that the ordinary magnet, with adjustable points, now in use is quite sufficient for all purposes. The one I now employ, while of the same general type, weighs less than a quarter of the original magnet, which weighed nearly 60 pounds. The technic applied in the removal of iron and steel in the accompanying cases is as follows:

Among the cases that have come under my observation during the past 10 years, several reported will illustrate the wonderful toleration of the eye to severe injuries involving the cornea, iris, lens and ciliary region—when we consider the rich nerve

and vessel supply of the so-called danger zone, namely, the ciliary region, we marvel that the damage to the delicate tissues following traumatism, with severe internal hemorrhage, together with the possible infection of an unclean foreign body, do not in all cases result in plastic iridocyclitis, with occlusion of the pupil, detachment of the retina and final Phthisis Bulbi, all of which must result in a hopeless loss of vision and possible involvement and total impairment of vision of the other eye.

First Case (right eye) :

William K. Age 40 years, ironworker. Injury occurred 6 weeks previous to my seeing him, March 17, 1911. A foreign body passed through the tunics of the eye 2 lines from corneal border in the external trans-verse meridian. Suffered extreme pain and swelling with vision reduced to perception of light owing to extensive hemorrhage, scleral wound 4 lines in length, angular in shape, marked bulging of area in vicinity of wound; re-opened wound, removed hernial mass and chip of steel which had fallen to floor of the vitrious chamber. April 20th, vision plus 2/50 spherical combined with plus 2/50 cylindrical in the 90th meridian equals 20/70.

Second Case (right eye) :

John W., aged 29 years. Seen Dec. 18th, 1912. Foreign body passed through center of cornea and lens with lacerated wound in iris extending from pupillary border to ciliary body. Traumatic cataract and iridocyclitis ensued with occlusion of the pupil Phthisis Bulbi following. During violent inflammatory period marked irritation of the left eye was observed. Calomel, and continuous application of ice bags for a period of several weeks resulted in a final discipation of sympathetic symptoms and on April 18th, refraction disclosed a visual activity of 20/20, with no intra-ocular evidence of pathologic change.

Third Case (right eye) :

John C., seen Feb. 10, 1913, two hours after injury. Foreign body passed through lower lid penetrating eye in the lower inner quadrant entering vitrious chamber. Foreign body removed through the original wound. Wound sutured, iodoform and vaseline dressing, with ice packs and free exhibition of calomel. In May patient was discharged with 20/60 vision.

Fourth Case (right eye) :

Ernest N., boilermaker, May 19, 1911, irregular piece of cast iron, penetrated the eye passing through the lower lid and tunics of the eye ball lodging in vitrious chamber, extensive hem-

orrhage caused complete obscuration of vision. Case seen within an hour following injury, prognosis bad owing to extensive escape of vitrious; wound sutured the usual dressing applied. Greatly to our surprise and gratification on May 26th, vision equaled 20/70 there being no detachment of the retina or other intra-ocular disturbance. Case very similar to Case No. 1. June 14th gives plus 75 with vision of 20/20. This is the most remarkable case, all things considered, that has ever come under my observation.

Fifth Case (left eye) :

Adam S., age 24. Seen June 6th, 1913, six weeks previous to my seeing man reported to physician that while working as a chipper at the American Ship Building Co., he thought a foreign body struck him in the eye; the attending physician after a careful examination reported no evidence of injury and inasmuch as the man suffered no impairment of vision or pain he was advised to return to work. A few days before presenting himself in my office, he noticed a rapidly increasing impairment of vision; oblique illumination revealed a chip of steel imbedded in the center of lens having passed through the central cornea. I prepared to remove the cataractus lens carrying with it the foreign body. The day appointed for the operation, however, revealed a very extensive swelling and rupture of the anterior lens capsule. In the presence of Dr. Ford I made a corneal incision and introduced the point of the magnet into the anterior chamber, greatly to my disappointment the steel passed behind the iris to its periphery. The magnet point was removed and the full force of the larger magnet was applied at the margin of the wound causing a bulging of the iris over the seat of the foreign body. This point was grasped by the iridectomy forceps and, a buttonhole incision was made through the iris permitting the removal of the steel by the magnet. Man was placed in hospital, the customary palative treatment administered. Patient examined in presence of Dr. Ford, Aug. 16th, with vision of 20/30 plus, with a plus 9 lens.

The patients are placed in a Knapp chair in a half reclining position, sensibility obtunded by a 10 per cent. solution of cocain, and an aluminum speculum employed to separate the lids. The magnet is then taken under the left arm, supporting the objective point with the right hand, and applying the same to the wound, if open, otherwise an incision is made through the sclera at the point of the original entrance, or at the superior vertical median line. The current is then turned on. In no instance among the many cases that have come under my observa-



tion have I failed to remove the foreign body if within the eye. The exit of the chip is greatly facilitated by the use of aluminum retractors and a probe of same in the hands of my assistant.

I fail entirely to comprehend the rationale of any method which permits a foreign body to be withdrawn through or around the lens into the anterior chamber, requiring incision through the cornea for its removal by the Haab or any other magnet of its power. I cannot appreciate the desirability of removing a foreign body through the pupillary space into the anterior chamber with its unwarranted damage to tissues, which may in no sense be implicated, and the attendant impairment or total loss of vision which must necessarily follow.

If the foreign body passed into the eye through this tract, then the same method should be observed as elsewhere. My experience in 183 cases has impressed me with the fact, observed by others, that the resulting damage to the eye is determined by the point of entrance, period elapsing between the injury and the removal of the foreign body, size, character and location; that no technic will insure visual safety. Each case is a law unto itself; and whether the foreign body is small or large, smooth or rough in outline, clean or septic, we are not warranted in making any prognosis other than unfavorable.

Remarkable as it is, I conceive that no organ in the economy is so tolerant to grave injury as the eye. It happens, fortunately to many of us that the most unfavorable prognosis is frequently attended with the most favorable results as regards vision.

The major point that I desire to emphasize is the fact that injured eyes, regardless of the severity of the reaction, do not require immediate enucleation. Among the many cases which have come under my observation in the past five years I have not had occasion to remove an eye, notwithstanding the fact that the gravest consequences apparently demanded such radical procedure.\* After carefully suturing the wound a dressing of vaselin and iodoform is applied, the patient directed to remain quietly in bed with an ice-bag applied, and such analgesics as will allay pain.

While I have occasionally encountered panophthalmitis,

\*Substituting evisceration in panophthalmitis, the value of which depends on our acceptance of the theory of transmission in sympathetic ophthalmitis.

calomel is freely exhibited, cold applications continued, and the outcome of the case awaited with confidence.

I am perfectly aware of the avalanche of criticism that this treatment may call forth. This course is such a radical departure from my former methods that I am often amazed by my own audacity.

Previous to the past five years I followed closely the directions laid down by Swanzy; carefully and conscientiously observing my way, however, under the importuning of my patients not to remove their eyes. I am convinced that many eyes have been unnecessarily sacrificed even when there was a degree of vision upon the assumption that sympathetic involvement may supervene. This fear no longer haunts me, as I have not had in the past ten years a case of sympathetic ophthalmitis, although a number of cases of so-called sympathetic irritation have been observed.

I am quite cognizant of the fact, as has been so ably portrayed by Deutschmann, Elschnig, and others, that sympathetic ophthalmitis is assuredly a severe disease always attended with dubious prognosis, with no specific remedy to stay its progress; and that here prophylaxis proclaims its triumphs.

In the face of all, however, there is now and then a note of doubt, and I am giving my patients the benefit of the doubt, trusting that the future will not produce a too severe indictment.

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**Typhoid From Watercress.**—It is apparent that an attempt to trace typhoid infection to the use of uncooked vegetables such as lettuce, watercress and celery is likely to succeed only under rather peculiar conditions. Ordinarily the distribution of such articles of food to a large circle of consumers, and the difficulty of discovering, several weeks afterward, that such things were eaten, and by whom, are facts that conspire to render us ignorant of the real frequency of such sources of infection. A remarkable typhoid outbreak apparently due to polluted watercress has recently been reported from Philadelphia. At a wedding breakfast, June 24, with forty-three guests in attendance, nineteen persons ate watercress sandwiches. Eighteen of these were ill, July 22, with typhoid fever, only two of them being in Philadelphia at the time, while the other sixteen were scattered in suburban territory and in summer resorts along the Atlantic coast as far away as Maine. Investigation by the Philadelphia Bureau of Health showed that the watercress had been secured from a farm on which the sanitary conditions were quite unsatisfactory. While the typhoid bacillus was not isolated from the cress-bed, all the other circumstances of the outbreak afford strong reason for suspecting watercress to be the vehicle of infection. It may be recalled that an outbreak of typhoid in Hackney, London, in 1903, was likewise attributed to watercress infection, although the evidence in that outbreak was not so convincing as that in the one just cited. Infection by celery has also been reported. Students of epidemics will have their attention still more strongly drawn by the Philadelphia case to the possibility of infection from such sources.—*J. A. M. A.*

# The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and  
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

THE OFFICIAL ORGAN OF THE ACADEMY OF MEDICINE OF CLEVELAND

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Entered March 7, 1902, as Second-Class Matter, Post-Office at Cleveland, Ohio, under Act of Congress of March 3, 1879.

Organized January 20, 1902 Capital Stock \$6,000  
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Reprints of articles will be furnished authors at a reasonable price.

All remittances to the Journal should be made payable to The Cleveland Medical Journal.

Short notes upon clinical experiences or reports of interesting cases will be welcomed by the editors.

Original articles are accepted for publication by this Journal only with the distinct understanding that they are contributed solely to this Journal and will not be published elsewhere as original.

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## EDITORIAL

### Dr. O. T. Schultz Honored

For almost two years the CLEVELAND MEDICAL JOURNAL has been edited by Dr. Oscar T. Schultz. Doctor Schultz assumed this post as a public duty for which his only recompense has been the grateful appreciation of the readers and the officers of THE JOURNAL, and the personal satisfaction of having given an altruistic service.

The resignation of Doctor Schultz is because of his acceptance of the post of Professor of Pathology and Bacteriology in the University of Nebraska. Doctor Schultz, then an unknown and untried recent graduate, came to Cleveland but a short while ago to assume the duties of Resident Pathologist to the Charity

Hospital. Since then he has risen rapidly through the positions of Demonstrator, Instructor, Lecturer and Assistant Professor of Pathology in the Western Reserve Medical School, to this promotion to the important post of full Professor.

During his stay in Cleveland he has brilliantly conceived and patiently carried out many researches in pathology, his principal contributions dealing with the pathogenesis of syphilis, dermatopathology, and the biology of tumor cells.

In the research laboratory, the class-room, the medical forum, and as editor, he is clear, concise, compelling, brilliant. The personal regard of his fellows was shown by a dinner given in his honor, which was attended by over fifty leading physicians—specialists, general practitioners, and the professional staff of the university.

While Cleveland feels the loss, still there is a source of satisfaction in feeling that Cleveland medicine may be credited with having contributed another university professor to the larger influence of medicine. THE JOURNAL bespeaks the sentiments of its readers in wishing him new and greater triumphs in his new post.

G. W. C.

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### The Medical Quick Lunch Counter

In the recent issue of the *Saturday Evening Post* for July 26, Mary Roberts Rinehart tells the story of the medical education of Americans in Europe, or more particularly in Vienna, under the rather striking heading of "The Medical Quick Lunch Counter." This article in the accuracy of the information given would do credit to a physician who had made the Vienna pilgrimage. That a member of the laity, and that a woman, should have given to the profession and the world so accurate and readable an account does credit to the American reporter and his, or her, ability to convey so much information from a knowledge which must of necessity be more or less superficial. But this story of the profession is written for the laity, though we of the profession can enjoy it too. So it is no doubt best that it should be written by a layman who has viewed the situation from a layman's point of view.

Taken by and at large it is not unkindly to the specialist who has made the pilgrimage to Vienna and has spent honestly both his time and his money in getting and bringing home with him what Vienna has to give. If the article had dealt more fully

with what is known to medical Vienna as the "Durchreisender or Six Weeks' Specialist," it might have given the public some information of which they are rather sorely in need. This type, after a sojourn of from two to three days to a week in the various medical centers, usually comes home and, pointing with pride to an "Erzeugnis" or diploma framed upon the wall, boasts most loudly of the weary hours spent in work. They have done scant honor to the profession at home before their departure, they do little toward giving American medicine a standing with the Europeans during their sojourn and they certainly do little credit to the training received abroad after their return. Unfortunately this class forms no small proportion of the profession who represent us abroad. It is on their account that, as Mrs. Rinehart says, "they don't think much of us over there medically." These are the men who go abroad largely for the prestige and after "spending most of their time in the Café de Paris or leaping avalanches in the Alps, come home with enough prestige to set them up for life."

In discussing the reasons why so many American physicians visit Europe annually and spend "between seventy-five and one hundred thousand dollars a year for lecture fees in Vienna alone," the author gives the following reasons:

- (1) The prestige, which we have already mentioned.
- (2) The difficulty of studying at home on account of the many distractions, as well as the fact that we often "appreciate more the thing that is hard to get."

- (3) "The third answer is perhaps the most important. Berlin and Vienna have commercialized their medical knowledge and put it on the market." This last reason reflects no discredit on Berlin or Vienna. It has been the natural reply, in answer to an insistent demand covering a period of many years. For, certain it is that, nowhere else in the medical world can a man get what he wants in so short a space of time and served in so concentrated a form, withal so artistically and interestingly and well worth while, as in Vienna. So Mrs. Rinehart's designation of Vienna as the "Medical Quick Lunch Counter" is to our minds deserved and in no sense derogatory. In addition to *having* and *imparting* the knowledge, the "Docent" and the assistant, for it is with him and not the "Professor" or "Hofrath" that we come most in contact, has made a study and is past master of the *art of teaching*, an art, be it confessed, of which the ablest of our own teachers are often sadly ignorant or neglectful.

“There is another reason. Perhaps it is the real reason after all—the endless wealth of material. Intensive living has told on Europe; poverty is frightful—and poverty brings her twin, disease. And there is another point, valuable from our point of view—every death is posted.” In this last we have one of the real reasons of Vienna’s early medical supremacy—a supremacy which has continued through long decades, with few challenges, up to the present day. Given an institution of nearly three thousand beds, with fifty thousand admissions to the hospital annually and two hundred thousand cases treated in the outpatient department, with every death posted, all this plus an organized corps of able and earnest investigators, we have a combination which must succeed anywhere, in Austria, in America or in South Africa. With us a patient may be an inmate of a charitable institution weeks, months or even years, at a cost to that institution of hundreds or even thousands of dollars. At his death the autopsy, the only return he can make for this care, may be denied by a near or distant relative or even an acquaintance, and the benefit therefrom lost to the institution and the profession. Such a state of affairs is a disgrace to our lawmaking institutions and a real hindrance in America to all that makes for medical progress.

If Mrs. Rinehart deals kindly with the mass of the American profession who study abroad, she also pays too high a tribute we fear to the rank and file of the foreign medical profession. The profession which she knows, and with which she has evidently come in contact, is that connected with their great medical institutions—not the rank and file. The medical man who graduates from the foreign medical school and works his way through the long grind of voluntary assistant, assistant, Docent, extraordinary professor, professor and Geheimrath or Hofrath is the exception and not the rule; any more than it is the rule with us. It is exceptional ability which in the first place gains him a place in the clinic or hospital; and it is this same exceptional ability, plus years of training, which gains him recognition afterwards. It is a decided question whether the rank and file of the profession abroad in innate ability, training, self-reliance and resourcefulness would measure even favorably with the profession at home. Let us not fall into the error of judging, or misjudging, the many by the few; just as we should not misjudge the American medical man at home by the six weeks’ specialist whom we meet abroad.

A well deserved tribute is paid to the American Medical

- Association in Vienna—"Vienna has medical works to sell, advertises them, condenses them—it is really sort of a tabloid lunch—and has a department store fixed priced system, thanks to the A. M. A." This association has systematized most thoroughly the courses offered and so has facilitated to a remarkable degree the work of the newcomer in arranging his courses. Furthermore it has placed the work on a fair and square basis, making it possible and vastly more easy to obtain what he wants, and in the shortest possible space of time. The rule of "first come, first served" is held inviolate; which, being interpreted, means that no newcomer, through pull or influence, can immediately gain admission to certain popular courses to the exclusion of others who have been waiting longer. The association too serves as a most efficient stimulus in holding those teachers who are likely to become careless or lazy up to definite standards of efficiency. "There are no disputes. It is not an armed neutrality. It is merely perfect understanding. The Americans control the market, but they pay the best prices. What they do is merely to insist that goods come up to specifications—so much time, so many people, in return for so much money."

Truly, as Mrs. Rinehart says, this is an age of specialism. Our medical man has become "a concentrationist, a man of one field, one battle—a specialist in the age of specialization." But this specialism does not of necessity mark the passing of the general practitioner, a fact which she so much regrets. He will continue to hold his place, not only in the smaller communities but in the larger as well. It is only in the latter that specialism can maintain itself. To the specialist the general practitioner will turn when in need of help in some fairly limited field. Meara's characterization of the general practitioner, in a recent number of the *Boston Medical and Surgical Journal*, is probably the best reply to Mrs. Rinehart's anxiety. "He is virile by virtue of his environment; he is self-reliant from his isolation; he is resourceful from necessity; he exalts common sense above fine theories; he deals with all conditions and preserves a breadth of vision, grasps general principles, and, failing the finer technical knowledge of the specialist, is spared the distortion of his perspective. He knows his patient as a man and a friend and not as a commodity, and he it is who exemplifies best and most consistently that unselfish regard for others that glorifies medicine."

W. B. C.

### School for Health Officers, Conducted by Harvard University and the Massachusetts Institute of Technology

Beginning this fall Harvard University and the Massachusetts Institute of Technology are to maintain in co-operation a School for Public Health Officers. The facilities of both institutions are to be available to students in the school and the Certificate of Public Health (C. P. H.) is to be signed by both President Lowell and President Maclaurin.

The object of this school is to prepare young men for public health work, especially, to fit them to occupy administrative and executive positions such as health officers or members of boards of health, as well as secretaries, agents and inspectors of health organizations.

It is recognized that the requirements for public health service are broad and complicated, and that the country needs leaders in every community, fitted to guide and instruct the people on all questions relating to the public health. To this end, the instruction of the new school will be on the broadest lines. It will be given by lectures, laboratory work, and other forms of instruction offered by both institutions, and also by special instructors from national, state and local health agencies.

The requirements for admission are such that graduates of colleges or technical and scientific schools, who have received adequate instruction in Physics, Chemistry, Biology and French or German, may be admitted to the school. The medical degree is not in any way a pre-requisite for admission, although the Administrative Board strongly urges men who intend to specialize in public health work to take the degree of M. D. before they become members of the School for Health Officers.

The Administrative Board which will conduct the new school is composed of Professor William T. Sedgwick, of the Massachusetts Institute of Technology; Professor Milton J. Rosenau, of Harvard, and Professor George C. Whipple, of Harvard. Professor Rosenau of Harvard has the title of Director, and the work of the school will be under his immediate supervision.

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### **“The True Essentials of a Feast Are Purely Fun and Feed.”**

Under the above caption appears a souvenir of the banquet of the Ophthalmological and Oto-Laryngological Section of the American Medical Association recently held in Minneapolis. Beside the menu and caricatures of members described as “Talking



Pictures," appears a list of the toasts all extemporaneous and unrecorded except that of "Milestones" responded to by Carl Fisher, of Rochester. Doctor Fisher's toast follows in full:

### Milestones

"The signal discoveries that have made our present day Ophthalmology and Otology possible, are touched upon but casually in the papers presented at these meetings. Accordingly it is my purpose to consider, reverently and exhaustively, the Milestones which mark our progress through the jungle of knowledge. If this proves tedious, I hope I may be pardoned in view of the serious purpose which underlies it.

The first milestone: we choose at random the discovery of Autointoxication, in Philadelphia. It was inevitable that this discovery should be made in Philadelphia, where even peristalsis is slow. Autointoxication differs little from ordinary Milwaukee intoxication, save that you have, as it were, your locker on the premises. The word means literally that you intoxicate yourself—in other words, go to our own head. Hence its frequency among hospital internes. The treatment of autointoxication is drastic and unmentionable. It is based on the assumption that a certain situation is forever incompatible with any exaggerated self esteem.

We propose to erect a tablet—calomel tablet—in the Hall of Fame, in honor of this discovery.

Another mile brings us to the discovery of Cyclophoria, in Nashville. The word is derived from the Greek root CYCLOS, meaning: to gyrate; to be firm, and PHAROS, meaning a light house or lamp. Hence, cyclophoria; a whirling lamp, as we understand it. That is, remember, as WE understand it. Its real nature is known only to its maker and his maker—others had better stick to squint. Suffice it to say that this subject is best studied on a diet of Scotch and soda, in this way you can view the condition subjectively, which is much better than a dry, academic view. We will place a garland of White House mint leaves in the H. of F. in honor of Cyclophoria.

The next milestone marks the most brilliant product of our era—the AMERICAN-INDIAN operation for cataract. Be careful not to confuse this with the Jullundur-Smith-Greene operation. It differs from the latter in its greater effectiveness; for while the Amritsar method extracts the lens only, our method does all this and also extracts vitreous and chorioid. Technic:—nothing could be simpler. The lids being held apart with a mouth-

gag, the cornea is excised with a graceful sweep of the Graefe knife; then smart pressure on the globe with the thumb and forefinger and out pop lens, chorioid and vitreous with gratifying force. This usually hits a rooter in the eye, thus affording much innocent amusement. The eye is bandaged for the usual ten days and then enucleated under general anesthesia and applause. This method is very popular among those who cannot go to India, though certain standpatters still stick to the old operation for visual purposes.

We will erect a shaft of glass, in the Hall of Fame, labeled "Vitreous Humor," which is the only humor connected with the operation.

Coming now to the field of Otology, we select, first the discovery of Labyrinthitis by a chap in Buda-Pesth. Labyrinths have always been distressing things since the days of Theseus and it is interesting to note that his labyrinth also shows traces of bull. It remained for the doughty Hun to put all the mysteries of the turning table, the hot and cold douches, the suction and compressions, the electric reactions and the elusive nystagmi into neatly labeled columns, like logarithms. As a result, your steno-grapher can now make as good a diagnosis in a case of vertigo as you can—to be sure, she probably always could.

The first step toward an understanding of the labyrinth tests is a speaking acquaintance with the Hungarian language. I well remember the innocent days in which I referred glibly to BARANNY—and secretly couldn't make head nor tail of the whole business. I then visited Boston, the impeccable, where they were saying BARANY, using the explosive B as in beans, but still I failed to get light. Lately I met a native who put me wise to the combination; now I say BARAYNY eye and can dream labyrinth. For instance, if a patient is stood on his head and revolved ten times to the right, meanwhile douching him with hot and cold water and stimulating him with the high frequency current, a resultant rotatory nystagmus with nausea and syncope indicates a labyrinthine lesion. Perhaps these things are better studied in Hungary.

The next bend in the road brings us to the submucous resection of the nasal septum. Strictly speaking it is not an operation at all, but a rhinologic exanthem—every aspiring rhinologist is early attacked by the inventive bug and either commits a new operation for the septum or fills up the long waiting hours by modifying the fifty-seven varieties of elevators. Your standing in the

learned societies depends largely on the number of instruments you have acquired in a long and extravagant career. If you can remember the names of them all, you are made a F. A. C. S. As a student I had supposed that the operation was designed to straighten the septum. I now know better. Its object is to provide free communication between the two nasal fossae, to give a pleasing variety to a profile offensively regular and to lend a musical charm to the respiration. I would like to put the technic of this operation on record but unfortunately I have not the latest edition of Pfau with me.

The extirpation of tonsils in capsule is at least half-brother to this operation and should be mentioned here. Breathes there a man with soul so dead, who never to himself has said: "This is mine own peculiar snare?" I would try to immortalize the inventor of tonsil extirpation, as they did the seven cities in which Homer was known to have been born, but hexameters fail me. Suffice it to say that the septum and tonsils are the Scylla and Charybdis, between which the unwary patient must steer his course.

We have saved until the last the great work of Heath in the Treatment of paracusis. The profession had been led—mised—by pathologists into supposing that otosclerosis had its abode in the bone: evidently a conspiracy in restraint of trade. We accepted this dictum without a murmur and daily hundreds of people were turned away from our offices who might just as well have sojourned there for weeks. Not so Heath. He noticed that while the wallets of these people were tense, their drumheads were lax. Experience had shown that lax habits led to cantharides. He decided that these lax membranes needed an aphrodisiac. Accordingly he caused these paracutics to foregather and did forthwith and willy nilly paint said drums with spanish fly. Amazement!! No Frankenstein could have more astonished his maker. The ripe old party in the front row now heard the siren voice of the soubrette; the plain spinster of uncertain years now listened daily to protestations of passion from the erstwhile cold lips of the curate; in short, the agonizing tinnitus became one long epithalamium. All for a guinea a throw! I can but inadequately honor the Heath treatment by laying at its feet this little thing of my own:

O Mr. Heath, O Mr. Heath, where did you get the notion  
To paint our flippy, floppy drums with such a naughty lotion.

For years and years our palsied ears received no lovers' vow.  
In answer to the tempters call we simply shouted "How?"

And if perchance your gay galants should ask what they should  
not—

Our ears were best of chaperons, we simply shouted "what?"

O Mr. Heath, O Mr. Heath, now see the change you've wrought,  
Each passing jest and idle word with wickedness is fraught.

Says Deacon Jones, in dulcet tones: "It's been a pleasant day."  
My strumpet ear doth only hear: "Let's to the cabaret."

O Mr. Heath, O Mr. Heath, its surely up to you  
By scientific hook or crook your mischief to undo.

The only way I might suggest—I doubt if it's been tried—  
Is to soak again this lax membrane in strong potassium bromide.

And so this most indecent plague of satyriasis aurium  
Will be changed entire to the angel choir of a sanctified sensorium.

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**Tuberculin Treatment.**—Tuberculin treatment in Mackenzie's opinion is still on its trial. The results of it so far are not brilliant, certainly not convincing. Vaccine treatment, as a whole, is on its trial, and if we except staphylococcus infections, Mackenzie says no more can be said for vaccines than for tuberculin. He has never seen a person who has been cured by vaccines of anything of which he could not get well without. He has yet to see absolute convincing proof that tuberculin treatment by itself will arrest or cure or improve a larger number of cases than would have arrived at the same results without the treatment. Until we have that we must preserve an open mind on the matter. The fact is that tuberculin as a remedy, if it is a remedy, must be put on a far lower plane than many remedies which we possess for the treatment of disease. The most that can be claimed for tuberculin is that it promotes the natural defenses of the body. That is something, but the same can be claimed for fresh air, for good food, for hygiene, for care, for climate, and for all the other weapons which we possess.

Much, in Mackenzie's opinion, remains to be done to prove that tuberculin possesses any very high value as a remedy. Let it be shown, he says, that tuberculous disease in animals can be cured more readily or arrested by means of tuberculin treatment than without. For a number of years Mackenzie used tuberculin in a large number of cases. He has used extract and endoplasm. He has given it orally and subcutaneously and at longer and shorter intervals. He has given it in repeated small doses and in gradually increasing doses. He has used it, he says, because he felt it ought to have a full trial. But after all the trials he has made he still feels uncertain as to the value of tuberculin.—  
*J. A. M. A.*

## Department of Therapeutics

Conducted by J. B. McGEE, M. D.

**Tetanus:** Astley P. C. Ashhurst and Rutherford L. John, in the June number of the *American Journal of the Medical Sciences*, summarize the rational treatment of tetanus. It is only within the past ten years that any definite knowledge as to the pathogenesis of the disease has been acquired and as a result of the information gained in this way, that rational treatment has become possible. Previous treatment, even if successful, was purely empirical. It is known that the disease is a pure toxemia. The bacilli or their spores may exist indefinitely in the tissues, and no symptoms will be produced unless toxins are formed. If the toxin is introduced into the system, it produces all the characteristic symptoms of tetanus, even though no bacilli are present. The therapeutic indications are (1) To prevent the development of tetanus. (2) To remove the source which supplies the toxin: i. e. the bacilli of tetanus. (3) To head off and neutralize the toxin already formed. (4) To depress the functions of the spinal cord. (5) To sustain the life of the patient by proper nourishment, nursing, etc. There are three things to be considered in the matter of the prophylactic use of antitoxin. (1) The frequency with which it should be given. (2) The site of the injection. (3) The quantity to be administered. As to the frequency, it appears to be a well ascertained fact that the antitoxin is all eliminated from the system in about eight or ten days after the injection. As the tetanus bacilli, if any are lodged in the wound, may not begin to produce any toxin until at least as long a time as this has elapsed, it is manifestly important, if the antitoxin is to be of any use, that some should be present in the system for two or three weeks after the receipt of the injury. Even if present in the wound from the first, the bacilli may lie dormant for weeks in spore form before development occurs with the production of toxin; the necessity for a second injection of antitoxin on about the eighth or tenth day is thus very evident, and it may be well to administer a third injection during the third week. In almost all of 55 cases, in which tetanus has developed in spite of the prophylactic use of antitoxin, *the injection was not repeated*. As to the site of the injection, the antitoxin should be given as near to the wound as possible, so as to flood the tissues in the immediate vicinity; and it should be deep, intramuscular if possible, so as to permit its rapid absorption by the motor nerves. If the antitoxin can reach the peripheral nerves before any toxin that is formed reaches them, the likelihood that the toxin ever will reach the spinal cord is much decreased. If any nerves are exposed in the wound the antitoxin should be injected into them. As to the quantity of the injection, usually 1500 units is the amount employed as a prophylactic dose. Such an amount is by no means excessive in view of the fact that the amount of antitoxin required to prevent death increases in geometrical progression with the lapse of time. After the lapse of one hour, twenty-four times as much antitoxin is required as when antitoxin and toxin are injected simultaneously (Remertz). Certainly antitoxin will be more useful if injected in the immediate neighborhood of the wound than elsewhere, as it will then be in more concentrated form as it comes into relation with the forming toxins.

**Hemoglobinuric Fever:** Carl Lovelace, in the June number of the *Archives of Internal Medicine*, considers the etiology and treatment of hemoglobinuric fever. Its exact etiology is still undetermined. It has been considered the result of pernicious malarial infection, in instances in which quinin will give relief; others consider it evidence of quinin intoxication; still others that we have here a duplex disease, quinin in some cases giving relief, in others hastening a fatal termination, a disease *sui generis*, where quinin is neither injurious nor beneficial. Some have advised the use of quinin only when the parasites can be demonstrated in the peripheral blood, still others believe that

hemoglobinuric fever can be avoided if the quinin is given intramuscularly. The general treatment of the condition is nearly as important as the abstinence from quinin. The chief indications are two; to supply water abundantly and to nurse carefully. Digitalis and caffein, both given intramuscularly and in full doses, are of decided value in the progressive heart weakness and as promoters of renal activity. He concludes that (1) There exists deplorable confusion as to the cause and treatment of blackwater fever. (2) So far as may be indicated by a series of 514 cases, malarial infection stands in a direct causal relation to blackwater fever. (3) Blackwater fever is not due to a particular species of malarial parasite. (4) Quinin in large or small doses was in this series an invariable antecedent of the hemoglobinuric condition. (5) Under no circumstances should quinin be given to a blackwater fever patient during the period of hemoglobinuria, nor for several days thereafter. The effect of the paroxysm of hemoglobinuria is itself that of a drastic but temporary therapeutic agent, decimating the malarial parasites in the patient's blood, much as a single intravenous injection of salvarsan decimates the spirochetes of syphilis in the lesions of that disease. (6) Quinin, cautiously given, will be necessary but should not be begun until several days after the urine is free from hemoglobin. (7) Measures which sustain the blood-pressure are urgently indicated during the period of hemoglobinuria; of these normal saline solution by bowel, subcutaneously or intravenously is chief. Digitalis and caffein are of decided value. (8) The prophylaxis of malaria is the prophylaxis of blackwater fever.

**The Febrile Heart:** In the April number of the *Medical Review of Reviews* (via *Penn. Med. Jour.*), G. W. Norris treats of the infectious febrile heart. While serious endocardial complications of certain affections, notably rheumatic fever, tonsillitis, pneumonia and gonorrhoea, are sufficiently appreciated and looked for, yet equally serious myocardial involvement is more easily overlooked. Increase in pulse rate, arrhythmia, hypotension, approximation of the first and second heart sounds, shortening and muffling of the first sound, are of far greater importance in many instances than the presence or absence of murmurs. While the mere existence of pyrexia is not an indication for treatment calculated to reduce it, hyperpyrexia which usually indicates an intense virulence of infection, may *per se* be a menace to myocardial stability. Two things stand out preeminently so far as the clinical significance of hyperpyrexia is concerned. (1) Arterial hypertension plays quite as important a role in a lethal termination of an acute infection as does myocardial weakness, while remedies for combating it are few and these are often ineffectual. (2) Our therapy of febrile tachycardia is most unsatisfactory. The influence of the toxic and febrile factors over the heart muscle and its controlling nerves is so much more potent than our methods of control, that oftentimes little in a remedial way can be done. In the treatment of the circulatory apparatus, and especially myocardial weakness during febrile infections, we must primarily turn our attention towards the improvement of the patient's general condition by attempting to lessen the toxemia. This is best accomplished by giving the patient plenty of fresh air. Hot mustard footbaths relieve cerebral congestion and improve peripheral circulation; while an icebag to the head and neck are useful. Proper evacuation of the bowels is always essential. Wherever nervous or circulatory stimulation is desired, cold sponging is useful in stimulating the central nervous system regardless of its additional use in hyperpyrexia. When the vascular tone is in abeyance, Norris says, it is useless to stimulate the heart. The vasomotor system should receive more attention in such cases than the heart itself. We must attempt to prevent the stagnation of the blood in the splanchnic areas, in other words we must raise the arterial tension in order to redistribute the blood properly. Adrenalin will do this temporarily; also strychnin and caffein, both of which increase reflex action. Mustard footbaths, hot or cold sponging, furnish the best means of obtaining improved vascular tone, through increased centripetal stimulation. In the direct

treatment of the circulatory apparatus itself, Norris finds the icebag over the precordium useful in slowing the pulse-rate. Since the response of the febrile organism to drugs is often quite different from that in non-febrile states, medication is here often disappointing. Strychnin is the most generally useful drug, but is often abused and should be reserved for critical periods to tide the patient over. Caffein is a useful drug in febrile conditions and should it cause restlessness or insomnia should be withdrawn. Camphor hypodermically in moderate doses is an excellent cardiac stimulant, while drugs of the digitalis group are often disappointing in acute myocardial changes occurring in toxic febrile infections.

**Blood-Spitting:** In the June number of the *Therapeutic Gazette*, M. H. Fussell defines blood-spitting as expulsion of blood from the mouth, whatever the source of the blood. Necessarily it is simply a symptom, and therefore consideration of this symptom means differentiation of the causes which lead to it. As to epistaxis, he knows of few things which are treated worse by the laity, and by some physicians, than nosebleed. The patient should be quiet, lying down, with the head slightly raised, and simple pressure made upon the anterior nares. Usually the bleeding will stop with these simple means; if it persists, the nasal cavity should be cleansed and a solution of 1-1000 adrenalin applied to the bleeding point if it can be discovered, if not, then spraying of the cleaned cavity may be of value. The worst cases have to be plugged and usually plugging from the anterior nares with a narrow strip of gauze is all that is necessary. Once the diagnosis of hemorrhage from the lungs is made, immediate treatment is necessary. In beginning cases, few are fatal, or even very serious and the simple hemorrhage needs rest as treatment, control of the cough and restraint from talking. The patient's mental condition should be quieted, and if the excitement is great, a simple hypodermic of morphin is all that is necessary. Nitroglycerin is of value in that it lowers the general blood pressure if given in large enough doses and during short intervals— $1/50$  or  $1/100$  of a grain every hour, depending on the physiological effect, and continuing until the bleeding ceases. Ice to the chest, if the point of bleeding can be discovered, is of value. Larger hemorrhages need continual rest in bed with application of exactly the same remedies. Nothing is of value in the very severe hemorrhages which cause almost instant death. Internal remedies are notoriously of little use. Adrenalin would be out of place, because so far as known the action of adrenalin is to relax the spasm in the bronchial muscles; it does not contract the vessels, so far as the best teaching goes. Ergot, which was formerly so universally used, is now not given at all by those who believe it has no effect on the bronchial vessels, and does raise general blood-pressure. Alcohol should not be used. Tannic acid and gallic acid have no value at all. In the long continued hemorrhages, those which last for days, in which the bleeding is very persistent, and in which there seems to be a dyscrasia, perhaps of the purpura state, the injection of human serum should certainly be tried, and horse serum may also be used. Calcium lactate can be used in these cases to stop this sort of bleeding. In repeated pulmonary hemorrhage where nothing seems to aid, artificial pneumothorax by forcing nitrogen into the chest may be tried, and certainly appears to do some good. In hemorrhage from gastric ulcer, the patient must be kept absolutely still in bed on a starvation diet, and morphin given hypodermically. Adrenalin may be given and large doses of bismuth until the patient is in fit condition to be operated upon. In severe cases the extremities should be bandaged and an ice pack placed on the epigastrium.

**Lobar Pneumonia:** In the *International Clinics (Vol. II, 23 Series)*, G. Morton Illman considers the therapeutic indications for antitoxins, serums and vaccines and as regards pneumococcal lobar pneumonia, states that although Osler in the eighth edition of his "*Principles and Practice of Medicine*" does not consider as satisfactory the results thus far obtained in the treatment of lobar pneumonia with

serums and vaccines, the amount of work that is being done along this line at present by many clinicians and laboratory workers must ultimately result in an advance over the old method of treatment, used to combat pulmonary pneumococcic infection. The field at the present time is divided into those working with and producing good results with vaccines, and those doing likewise, but he thinks to a less degree, with serums.

Wadsworth says it is evident that immune serums vary greatly in their curative value. From his experiments he believes it reasonable to conceive of the infection in man yielding, as in animals, to the administration of serums. In treating pneumonia with pneumococcic serum, in both adults and children, large doses of the serum, 100 to 150 ccm, should be used, and may be given with comparative safety. Vaccines have increased rapidly in their use as a means of treating and producing an early crisis in lobar pneumonia and Illman believes that after all this is the essential factor in treatment. The patient suffering from an intense and ever-increasing toxemia, which threatens from day to day to overwhelm his myocardium and kidney structure or both, must be benefitted by anything (be it a vaccine or a serum), that will lessen, counteract, or immunize such a toxemia, if only to the extent of twenty-four hours; therefore this is a reasonable and rational treatment. In his own rather extensive use of vaccines in lobar pneumonia, his results have rather stimulated further and more extensive use of this treatment. In his service with Dr. Wm. Egbert Robertson at the Samaritan Hospital, Philadelphia, they make it a routine practice to give an injection of from 400 to 500 million stock pneumococci in every case of lobar pneumonia, just as soon as the diagnosis is made, and this is followed in two or three days by a second injection of the same size or a trifle smaller. Their results from the very beginning were so favorable when compared with control cases given the usual symptomatic treatment, that they are not doing their full duty to their pneumonia cases unless they are given the benefit of vaccine treatment. He has never noticed any marked favorable influence upon the clearing up of the physical signs in lobar pneumonia immediately following the crisis or termination of the toxic symptoms, but in cases of distinctly delayed resolution, especially when secondary toxic symptoms appear caused by a secondary infection or the result of the lighting up of an old previously existing infection as tuberculosis, vaccines again become a therapeutic aid, especially when given with due regard for the etiologic organisms present.

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**Influenza:** W. A. Wallace, in the *New York Medical Journal* for June 7th, thus summarizes the contraindications in the treatment of influenza. Coal tar products should not be employed in large doses, neither should depleting measures, as venesection, wet cupping or leeching. Influenza is an exhausting malady. It is well to remember the relative strength of the three most used coal tar products, which are as follows: Strongest and most depressing to the heart and respiration, acetanilide; next, antipyrine; least depressing, acetphenetidin. Digitalis is useless as a cardiac or circulatory stimulant in this disease. It does not act on the circulatory apparatus when there is fever. The use of strychnin in large dosage should not be continued for an excessive period of time. Its use results in over-stimulation followed by depression or paralysis of the nervous system, including the cardiac ganglia, and delirium. Alcohol is of no value during the active period of the disease. The use of the combination of brown mixture and antimony so much in vogue in former years is to be condemned. In many cases of *La Grippe*, particularly those in which there is marked involvement of the lungs or kidneys, there is a tendency to the development of pulmonary edema. Antimony greatly increases the liability to this unfortunate complication and frequently causes the death of patients by drowning in their own secretion, so to speak. In the therapeutics of influenza, the empirical use of drugs is to be tabooed. When in doubt masterly inactivity is the rule of conduct to be pursued.



**Tuberculin:** Solomon Solis Cohen, in the April number of the *Critic and Guide*, treats of the use of tuberculin by the mouth. He finds it useful in judiciously selected cases, if given at the appropriate time and in the proper way. It is useful in certain cases of pulmonary tuberculosis, not too far advanced, in which improvement has already been brought about by open air life, aided by diet, rest, etc. In certain cases, he says, because it is unnecessary in many and whatever is unnecessary is harmful. It is necessary only in those cases in which improvement becomes sluggish or comes to a standstill; or in which the patient completely reverses the admonition of the prophet, and not only ceases to do well, but also does badly. It may then give that slight flip to the restive and reparative forces, which seems necessary to bring them up to the degree demanded. 2. In cases of vesical tuberculosis, of renal tuberculosis, of glandular and bone tuberculosis at any stage, in early laryngeal tuberculosis and perhaps in intestinal. As to the form employed, Latham advised *tuberculin residue* (T. R.) and he has used this for two years, and has also tried *bacillen emulsion* (B. E.) and *tuberculin purum* (endotin). The last named, endotin, is better suited for hypodermatic use, as it does not cause fever. It is difficult to determine reactions in the ambulant case. Bacillin emulsion is more powerful than tuberculin residue. He has recently succeeded in persuading the manufacturers to put up four sizes of tablets (one millionth, one one-hundred thousandth and one-thousandth milligram respectively) of T. R. and of B. E. The remedy is much more readily handled in this form than as a liquid, and the dosage can be adjusted very simply. Mulford's is at present the only house making the tablets. Latham gave the dose in the early morning before breakfast, in horse serum, a dram or so to aid absorption. Solis Cohen uses it also in skim milk, even whole milk diluted with water, whey or beef juice, which seem to answer equally well. The dose may in hospital or bed cases be given in the early morning, so that the temperature rise indicative both of reaction and of the initial negative opsonic phase can be watched for. With ambulants, outside of hospitals, unless one wishes to keep the patient in bed all day, it is best to give the dose at bedtime. If the morning temperature, which the patient himself can be retained to take, is higher than that of the previous day, the patient should remain at rest, and recumbent, not necessarily in bed, until the following morning, and longer if the elevation of temperature persists. If there is no rise of temperature he may get up and go about as usual. At first there should be at least two days without any elevation of temperature before the dose is repeated. Later, one day of freedom may suffice. The initial dose of T. R. is one one-hundred thousandth milligram, increased by one one-hundred thousandth of a milligram at each repetition, until a dose is reached which provokes febrile or other constitutional disturbance in sign of general reaction, increase of rales or other local disturbance in sign of focal reaction. The initial dose of B. E. is one millionth of a milligram, and this is watched and increased in the same way. The treatment should be kept up as long as it seems useful, and necessary. The highest dose he has ever given is one milligram. The tuberculin is used as an adjuvant to other treatment *secundum artem*. He has treated 70 or 75 cases, and is satisfied that the oral method will do whatever the hypodermic will do, while it is more manageable and less expensive to poor patients who desire private treatment.

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### New and Nonofficial Remedies

Since publication of *New and Nonofficial Remedies*, 1913, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

**Emetin Hydrochlorid.** Emetin Hydrochlorid is the hydrochlorid of an alkaloid found in ipecac. It occurs as a white crystalline powder, soluble in water yielding a neutral solution. Emetin Hydrochlorid acts similarly to ipecac but is relatively more nauseant and less emetic, and

causes relatively less renal irritation, but more cardiac depression. Emetin Hydrochlorid in the form of injections has been reported to be of especial value in amebic dysentery.

Emetin Hydrochlorid, Merck. Merck and Co., New York.

Ampules Emetin Hydrochlorid, Mulford. Each ampul contains emetin hydrochlorid 30 mg. H. K. Mulford Co., Philadelphia, Pa. (*Jour. A. M. A.*, July 5, 1913, p. 27.)

Acne Vaccine. For description of Acne Vaccine see *N. N. R.*, 1913, p. 221. Greeley Laboratories, Inc., New York City.

Colon Vaccine. For description of *Bacillus Coli* Vaccine, see *N. N. R.*, 1913, p. 221. Greeley Laboratories, Inc., New York City.

Pyocyanus Vaccine. For description of *Bacillus Pyocyanus* Vaccine see *N. N. R.*, 1913, p. 222. Greeley Laboratories, Inc., New York City.

Gonococcus Vaccine. For description of Gonococcus Vaccine see *N. N. R.*, 1913, p. 223. Greeley Laboratories, Inc., New York City.

Meningococcus Vaccine. For description of Meningococcus Vaccine see *N. N. R.*, 1913 p. 223. Greeley Laboratories, Inc., New York City.

Pneumococcus Vaccine. For description of Pneumococcus Vaccine see *N. N. R.*, 1913, p. 224. Greeley Laboratories, Inc., New York City.

*Staphylococcus Albus* Vaccine. Greeley Laboratories, Inc., New York City.

*Staphylococcus Aureus* Vaccine. For description of *Staphylococcus* Vaccine see *N. N. R.*, 1913, p. 225. Greeley Laboratories, Inc., New York City.

Streptococcus Vaccine. Greeley Laboratories, Inc., New York City.

*Streptococcus Erysipelatis* Vaccine. For description of Streptococcus Vaccine see *N. N. R.*, 1913, p. 226. Greeley Laboratories, Inc., New York City.

Typhoid Bacillus Vaccine. For description of Typhoid Bacillus Vaccine see *N. N. R.*, 1913, p. 227. Greeley Laboratories, Inc., New York City.

Tuberculin B. E. For description of New Tuberculin, Koch, Bacilli Emulsion ("B. E.") see *N. N. R.*, 1913, p. 233. Greeley Laboratories, Inc., New York City (*Jour. A. M. A.*, July 5, 1913, p. 27).

Diplosal. Diplosal is the salicylic ester of salicylic acid. It is white, almost tasteless and almost insoluble in water. While diplosal is insoluble in dilute acid, it is soluble in alkaline liquids with gradual liberation of salicylic acid, accordingly it passes the stomach unchanged, but is readily absorbed in the intestine. Diplosal may be used where salicylic acid or salicylic acid derivatives are indicated. It is marketed as a powder and in tablets.

Diplosal Tablets, 7½ grs. Each tablet contains 0.5 gm. diplosal. Merck and Co., New York (*Jour. A. M. A.*, July 12, 1913, p. 121).

The following articles have also been accepted for inclusion with New and Nonofficial Remedies:

Acne Vaccine (Lederle Antitoxin Laboratories).

Pertussis Vaccine (Lederle Antitoxin Laboratories).

Meningococcus Vaccine (Lederle Antitoxin Laboratories).

Coli Vaccine, 20 Cc. vials (Lederle Antitoxin Laboratories).

Gonococcus Vaccine, 20 Cc. vials (Lederle Antitoxin Laboratories).

Pneumococcus Vaccine, 20 Cc. vials (Lederle Antitoxin Laboratories).

*Staphylococcus* Vaccine, 20 Cc. vials (Lederle Antitoxin Laboratories).

*Staphylococcus Albus* Vaccine, 20 Cc. vials (Lederle Antitoxin Laboratories).

*Staphylococcus Aureus* Vaccine, 20 Cc. vials (Lederle Antitoxin Laboratories).

Streptococcus Vaccine, 20 Cc. vials (Lederle Antitoxin Laboratories).

Typhoid Vaccine, 20 Cc. vials (Lederle Antitoxin Laboratories).

Tetanus Antitoxin, (H. M. Alexander & Co.).

Digipuratum Ampules, (Knoll & Co.).

Digipuratum Solution for Oral Use, (Knoll & Co.).

### Book Reviews

Epidemic Cerebrospinal Meningitis. By Abraham Sophian, M. D., formerly with the New York Research Laboratory. Cloth, pp. xv and 272, 23 illustrations, \$3.00. C. V. Mosby Company, St. Louis, 1913.

During the past decade, no disease has claimed more attention than epidemic cerebro-spinal meningitis, due largely to the finding of a specific curative serum by Jochmann in 1905 and later by Flexner. It seems strange therefore, that this is the first monograph in the English language that has appeared on this subject. The author is unusually well qualified to write such a book, having spent considerable time in the Research Laboratory of New York, and besides he has had unusual clinical opportunities for studying the disease during the epidemic of Texas in 1912.

The chapter on the etiology of meningitis covers the ground thoroughly, and a great deal of attention is paid to the question of meningococcus "carriers," the author believing, along with many others, that healthy persons coming in contact with cases of meningitis may harbor in the naso-pharynx the meningococcus.

The chapter on symptomatology is unusually complete.

The chapter on laboratory diagnosis of meningitis, deals in detail with the examination of the cerebro-spinal fluid, blood and other secretions such as these of conjunctiva, herpes and pus from the middle ear. This is the most valuable chapter in the book.

The discussion of treatment is unusually complete and the author lays a great deal of stress on blood pressure determinations as a guide to the quantity of fluid to be withdrawn during lumbar puncture and the amount of serum to be injected.

This book can be recommended as a complete summary of our present knowledge of epidemic cerebro-spinal meningitis. J. P.

The Practice of Urology. A Surgical Treatise on Genito-Urinary Diseases Including Syphilis. By Charles H. Chetwood, M. D., LL. D., Professor of Genito-Urinary Surgery, New York Polyclinic, etc. Wm. Wood & Company, New York, 1913.

This book makes a very valuable addition to the already considerable number of text books on genito-urinary diseases. It differs from the other text books, however, in that the author has stamped upon it his own individuality, and on certain subjects he has brought the book more up-to-date by incorporating recent advances in certain lines. The features embodied in the book, which give it a modern status, are the present local treatment of gonorrhoea; the application of serum diagnosis and serum therapy; advancement in cystoscopic and functional renal diagnosis; various features in surgical technic, and the latest viewpoint on salvarsan therapy. H. L. S.

Fibroids of the Uterus: Their Pathology, Diagnosis and Treatment. By Sir John Bland-Sutton, Surgeon to the Middlesex Hospital and its Cancer Charity. Leather, 249 pages, with 39 illustrations. Science Reviews, Limited, 36 Whitefriars St., London, E. C.

Sir John Bland-Sutton, F. R. C. S. Surgeon to the Middlesex Hospital and its Cancer Charity. Published by Science Reviews, London.

This is a monograph of two hundred and forty pages on uterine fibroids, their complications, sequelae and treatment. It is very readable, covers the subject well and reflects on every page the large experience of the author. He emphasizes the difficulty or impossibility of distinguishing between simple fibroid growth and sarcomatous growth in the uterus and thinks that this rather than malignant degeneration, is the explanation of uterine sarcoma following supposed fibroids. The sections pertaining to the clinical appearance and the diagnosis of these tumors is particularly good. The chapters on technique might be developed with advantage to the reader. No one can fail to benefit by a careful reading of this work. A. J. S.

Private Duty Nursing. By Katherine DeWitt, R. N., Assistant Editor of the American Journal of Nursing. Cloth, 244 pages, \$1.50 net. Pp. 244. J. B. Lippincott Company, Philadelphia, 1913.

The young nurse, during her training in the hospital has been instructed in the care of patients, the ethics of nursing, but her viewpoint is entirely that of a nurse who cares for a patient in the hospital. How different, often is her experience, when she goes into the home of her patient, often without regular hours, with the household completely upset by illness, with insufficient help and often poor food and bed, and surrounded by critical relatives of her patient. In this new world in which she finds herself, if she is possessed of a goodly amount of common sense she will be able, with her previous training, to emerge triumphant. If, however, she lacks tact and is not resourceful, no matter how successful her hospital career may have been she will be a failure. I know of no book more helpful to the nurse who expects to do private nursing in the home than this volume. Throughout its pages, one can easily gather useful hints, which the author has learned by long experience. If doctors and patients could read this book they could work more easily in harmony with the trained nurse.

J. P.

### Acknowledgements

Hygiene and Sanitation. A Text-Book for Nurses. By George M. Price, M. D., Director Joint Board of Sanitary Control; Director of Investigation, New York State Factory Commission. 12mo., 236 pages. Cloth, \$1.50, net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

Marriage and Genetics. Laws of Human Breeding and Applied Eugenics. By Charles A. L. Reed, M. D., F. C. S. Pp. 182. (5¼x7¼). Price, including postage, \$1.00. Subscription only. The Galton Press, Publishers, Cincinnati, Ohio.

Minor and Operative Surgery, Including Bandaging. By Henry R. Wharton, M. D., Professor of Clinical Surgery in the Woman's Medical College, Philadelphia. New (eighth) edition, enlarged and thoroughly revised. 12mo., 700 pages, with 570 illustrations. Cloth, \$3.00, net. Lea & Febiger, Philadelphia and New York, 1913.

Volume I of the Medical and Surgical Reports of the Episcopal Hospital, Philadelphia. Edited by Astley P. C. Ashhurst, M. D.

Glycosuria and Diabetes. By Frederick M. Allen, A. M., M. D. Octavo, 1200 pages, \$9.00. W. M. Leonard, Boston, 1913.

An Introduction to the Study of Infection and Immunity. Including Serum Therapy, Vaccine Therapy, Chemotherapy and Serum Diagnosis. By Charles E. Simon, M. D., Professor of Clinical Pathology and Experimental Medicine, College of Physicians and Surgeons, Baltimore. New (2d) Edition, thoroughly revised. Octavo, 325 pages; illustrated. Cloth, \$3.25, net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

Malaria—Etiology, Pathology, Diagnosis, Prophylaxis and Treatment. By Graham E. Henson, M. D., member American Medical Association, Florida Medical Association, American Society of Tropical Medicine, Medical Reserve Corps, United States Army (Non-Active List), \$2.50. C. V. Mosby Company, St. Louis.

The Practical Medicine Series, Volume III, Series 1913. The Eye, Ear, Nose and Throat. Edited by Casey A. Wood, C. M., M. D., D. C. L.; Albert H. Andrews, M. D.; Gustavus P. Head, M. D. Price of this volume, \$1.50. Price of the series of ten volumes, \$10.00. The Year Book Publishers, Chicago.

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versity of London Press—Oxford University Press—American Branch, 35 West 32d Street, New York.

A Manual of Otolgy. By Gorham Bacon, A. M., M. D., Professor of Otolgy in the College of Physicians and Surgeons, Columbia University, New York. New (6th) edition, thoroughly revised. 12mo., 536 pages with 164 engravings and 12 plates. Cloth, \$2.25, net. Lea & Febiger, Philadelphia and New York, 1913.

Anatomy, Descriptive and Applied. By Henry Gray, F. R. S., Fellow of the Royal College of Surgeons; lecturer on Anatomy at St. George's Hospital Medical School, London. New (American) edition, thoroughly revised and re-edited, with the ordinary terminology followed by the Basle Anatomical Nomenclature, by Edward Anthony Spitzka, M. D., Director of the Daniel Baugh Institute of Anatomy and Professor of General Anatomy in the Jefferson Medical College of Philadelphia. Imperial octavo, 1502 pages, with 1225 large and elaborate engravings. Cloth, \$6.00, net; leather, \$7.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

Pellagra: Prevalence and Geographic Distribution in Arkansas, Oklahoma and Texas. By C. H. Lavinder, Surgeon United States Public Health Service. Reprint No. 137 from the Public Health Reports July 25, 1913, Government Printing Office, Washington.

A New Design for a Sanitary Pail. By Victor G. Heiser, Surgeon United States Public Health Service, Chief Quarantine Officer and Director of Health for the Philippine Islands. Reprint No. 138 from the Public Health Reports, July 25, 1913. Government Printing Office, Washington.

Fumigation of Vessels For the Destruction of Rats. By S. B. Grubbs, Surgeon United States Public Health Service, and B. E. Holsendorf, Pharmacist United States Public Health Service. Reprint No. 132 from Public Health Reports, June 20, 1913. Government Printing Office, Washington.

A Model State Law for Morbidity Reports. Adopted by the Eleventh Annual Conference of State and Territorial Health Authorities with the United States Public Health Service, Minneapolis, June 16, 1913. Reprint No. 133 from Public Health Reports, June 27, 1913. Government Printing Office, Washington.

Bulletin—Chicago School of Sanitary Instruction, Vol. VII, No. 33, August 16, 1913, Department of Health, Chicago.

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**Hapgood Runs True to Form.**—The aforesaid readers of *Harper's Weekly*—the oldest illustrated weekly newspaper in the country—will hardly recognize it under its new ownership and editorship. The change is radical; everything is new but the name: typography, make-up, arrangement—all are different, and better. But the greatest difference is in the character of its contents—and of course this might have been expected with Norman Hapgood as editor. *Harper's Weekly* is no longer mainly political; it is so only incidentally. As its subtitle has already had it, it is indeed again "a journal of civilization"; or probably it would be better to say "for civilization." This comment, however, is mainly to call attention to, and to quote from, one item in the initial number under Mr. Hapgood's editorship. After referring to the many letters that the editor had received asking that "both sides" be given in the vivisection controversy, and stating that if a course hostile to the antivivisection crusade were pursued the writers would not subscribe, *Harper's Weekly* says:

We have no intention of giving both sides. On the contrary, the support of the cause of scientific medical progress will be one of the things to which we shall be energetically devoted. We shall no more give both sides of the argument on experiment than we shall give both sides of the question of whether the household fly shall be encouraged in the dining room, or sewers emptied into the city reservoir, or swamps kept for the breeding of mosquitoes, or small-pox patients permitted to

ride on the street cars. We shall be extremely bigoted on the subject, and shall hope that the day will soon come when cancer will be added to the great diseases that have yielded to investigation.

We congratulate Mr. Hapgood on the fact that he has the courage of his convictions and is not afraid to express them. Also, we congratulate him on the various good things he has introduced into this *new* journal published under an old name.—*J. A. M. A.*

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**American Association of Orificial Surgeons** will hold its annual convention and clinic in Chicago, Sept. 23d to 26th, inclusive. All physicians of all schools are invited to attend both. Dr. E. H. Pratt, father of Orificial Surgery, will personally operate and lecture. The Clinic will be under the supervision of a faculty of teachers composed of prominent Orificial surgeons. At the Clinic surgical methods of cure for all chronic diseases will be demonstrated daily: Asthma, Dyspepsia, Paralysis, Eczema and Rheumatism, as well as diseases that present simply an aggravated attack of local pathology will be treated.

The Clinic is free, and will be held in the amphitheater of the Francis E. Willard Hospital, 710 S. Lincoln St., across from the Cook County Hospital.

In the convention papers will be read by prominent men upon the Philosophy of Orificial Surgery, its technique, its application in the treatment of refractory chronic ailments. The headquarters for the convention will be the Hotel La Salle, La Salle and Madison St. All its sessions, programs and committee meetings will be held therein. For further particulars you are invited to address the secretary, W. A. Guild, M. S., M. D., Des Moines, Iowa.

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**Balances.**—Readers frequently protest that *Collier's* is illogical in its antagonism to liquor, since it accepts the advertisements of smoking tobacco. Smoking, they say, is a habit as much as drinking, and deleterious in a lesser degree only. True enough. Coffee and tea also inspire habit, harmful habit in many cases. Yet nobody—except, perhaps, that lofty purist of the breakfast table, Mr. Post of Postum fame—would protest against the sale and use of these beverages. Eating to excess is a habit with many worthy, if gluttonous, people. Giving the word its radical and not its limited meaning, there is probably quite as much intemperance in eating as in drinking, though the results are neither as obvious nor as disastrous. Almost any exercise of the human functions may, by excess, become a baneful habit. It remains, therefore, for the person who is called upon to establish ethical standards for himself and others to answer this fundamental question: Does the good outweigh the harm, or vice versa? In the case of liquor and drugs there is no room for doubt in our mind. Here the harm is profound and of infinite scope. The pleasure derived from the use of alcohol by the man who is able to control his appetite is as nothing compared to the social ruin wrought by the drink habit. With tobacco it is different. Admitting frankly that nicotine is a poison, and that smoking is a habit of considerable tenacity, we believe, nevertheless, that in a great majority of instances the adult male who uses the "weed" derives from it more benefit than damage—the benefit of a recurrent pleasure, the benefit of soothed nerves, the benefit of that subtle and philosophical calm which helps to dissipate petty troubles and annoyances with the smoke as it rises, fades, and is gone. Life is based on compromise, says the diplomat. Let us say rather that it is based on an adjusted balance of good and ill, and let us give, in determining that balance, due weight to those pleasures which, if they work some minor harm upon ourselves, make for the general good by sweetening life for us and thus rendering us more kindly, temperate, and tolerant toward the world in which we live.—*Collier's*.

## Medical News

**State Association Meeting.**—The sixty-eighth annual meeting of the Ohio State Medical Association was held at Cedar Point, September 2-4, and the following officers were elected: president, Dr. George A. Fackler, Cincinnati; president-elect, Dr. John H. J. Upham, Columbus; secretary-treasurer, Dr. C. D. Selby, Toledo (re-elected); chairman of the legislative committee and member of the legislative council, Dr. B. R. McClellan, Xenia; councilors, Drs. Clyde E. Ford, Cleveland, and Wells Teachnor, Columbus; delegates to the American Medical Association, Drs. Charles Graefe, Sandusky; W. D. Porter, Cincinnati; Charles L. Minor, Springfield; B. R. McClellan, Xenia; W. William Means, Columbus, and E. O. Smith, Cincinnati. Columbus was selected as the next place of meeting.

**More Hospitals for Cuba.**—We learn from *Consular Reports*, Aug. 7, that the cabinet of Cuba has granted the demand of the Department of Sanitation for forty new hospitals for the island. They are to be paid for from the lottery fund. A bill granting an appropriation of \$65,000 for establishing a hospital at Guantanamo has also recently been signed by the president of the republic.

**Roentgenologists Meeting.**—The fourteenth annual meeting of the American Roentgen-Ray Society will be held in Boston, October 1-4. Lantern slide demonstrations will be an important feature of the proceedings and the plate exhibits promise to exceed all previous exhibits in size and illumination facilities.

**Physicians Named for Poor.**—Safety Director Mooney, Toledo, has announced the appointment of the following twelve physicians to render aid to the indigent poor: Drs. Geo. L. Chapman, Helen M. Nolen, W. E. R. Schottstaedt, James G. Cullen, Dalton Kahn, Leo S. Talaska, James C. Price, Emily C. Willoughby, Edwin C. Ballinger, Robert E. Lawless, Frank C. Titus and Charles H. Ferguson.

**New Hospital for Port Clinton.**—Dr. Henry J. Pool has purchased the Carrothers residence on East Second street, Port Clinton, and has converted it into a private hospital.

**Unique Health Exhibit Will Be Carried From Town to Town to Teach People How to Live.**—The state board of health will commence a campaign to carry "the gospel of good health" into the smaller communities of Ohio this week through a unique traveling public health exhibit. The exhibit will open at Marysville on September 17 and continue six days. From there it will tour the county seat towns of Ohio.

The exhibit is primarily designed to bring to these smaller communities a realization of the great public health problems which are today facing the state. Electrical and mechanical devices will impress startling facts in such a way that the man or woman visiting the exhibit is sure to give more thought to the question of doing his or her share towards preventing disease.

The usually high death rate among babies of the state is, for instance, graphically shown in an electrical model where five small baby cradles revolve on a belt. Automatically the fifth one disappears and in its place a gruesome child's tombstone appears. This model is designed to call attention to the fact that one baby in every five dies before reaching its second birthday through the ignorance or neglect of its mother in following simple hygienic precautions.

But the exhibit is chiefly constructive in its teachings. Models are shown of sleeping porches that may be added to any home at slight cost. Problems of farm sanitation are presented by the models in such vivid form that the farmer who sees them will be apt to exercise more care in the relative location of the farm manure pile and the drinking wells.

Each night during the exhibit, experts on various health matters connected with the state board of health will lecture in connection with the exhibit on popular health subjects, thereby seeking to engender a more intense local interest in problems of sanitary sewage, garbage disposal, food inspection, fly swatting, tuberculosis prevention and like matters.

**Women's and Children's Free Medical and Surgical Dispensary.**—Thirty-five years ago Dr. Myra K. Merrick, one of Cleveland's first woman physicians, realizing the need of clinical advantages for young women physicians as well as a place where women might be treated exclusively by physicians of their own sex, founded the Women's and Children's Free Medical and Surgical dispensary.

It struggled along for years, getting meager assistance, but each year accomplishing more than the previous year. Last December the score or more of women physicians in Cleveland assembled, voted to take over the dispensary and increase the scope of the work. A double house on a large lot at 3645 Cedar Avenue S. E. was purchased and more women in the city were added to the board of managers. Now Cleveland has its first real women's and children's hospital where women physicians and surgeons make up practically the entire staff.

The following, according to Dr. Josephine M. Danforth, secretary of the Women's Hospital association is the purpose:

"Our aim is to assist all self-supporting women by furnishing the best medical and surgical skill at the most moderate fee. Free service will be given if necessary. The best specialists in the city, both men and women, have charge. The evening clinics are especially designed for those employed during the day."

On the staff of the Women's hospital may be found all the women physicians and surgeons in the city. Women physicians, by rule and precedent, are not on the staffs of any of the other Cleveland hospitals.

**Miami County Medical Society.**—Physicians are receiving programs of the Miami County Medical Society for 1913-1914. The first meeting was held at Troy on September 4. The meetings in that city will be held at the Troy Club while the sessions held in Piqua will meet at the Piqua Club.

The October session will be held in Piqua on the first Thursday of that month. The following program is arranged:

"Aneurism"—R. J. Caywood.

Discussion opened by Dr. R. M. Shannon.

Report of Clinical Cases, F. O. Kiser and Hetherington.

The November session will be held at Troy. The program is:

"Diabetes Mellitus"—L. S. Hoover.

Discussion opened by H. H. Havens.

Report of Clinical Cases—Shinn and B. J. Kendall.

December's program comes to Piqua. It is:

"Care of Patient From Conception to Labor"—J. H. Baker.

Discussion opened by S. D. Hartman.

Report of Clinical Cases, Van S. Deaton and Thompson.

**Examination of Candidates for Assistant Surgeon,** Treasury Department, United States Public Health Service, Washington, September 10, 1913. Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, S. E., Washington, D. C., and at the Marine Hospitals of Boston, Mass.; Chicago, Ill.; St. Louis, Mo.; New Orleans, La., and San Francisco, Cal., on Monday, October 20, 1913, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two re-



sponsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

Candidates must be not less than 5 feet, 4 inches, nor more than 6 feet, 2 inches in height.

The following is the usual order of the examinations: 1, Physical; 2, Oral; 3, Written; 4, Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and that they will serve wherever assigned to duty.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists of examination in the various branches of medicine, surgery and hygiene.

The oral examination includes subjects of preliminary education, history literature and natural sciences.

The clinical examination is conducted at a hospital.

The examination usually covers a period of about ten days.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments.

After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assisted surgeon.

Assistant surgeons receive \$2,000, passed assistant surgeons \$2,400, surgeons \$3,000, senior surgeons \$3,500, and assistant surgeon generals \$4,000 a year. When quarters are not provided, commutation at the rate of \$30, \$40 and \$50 a month, according to the grade, is allowed.

All grades receive longevity pay, 10 per cent in addition to the regular salary for every five years' service up to 40 per cent after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."

**United States Civil Service Examination.** Chief Bacteriologist (male), October 6, 1913. The United States Civil Service Commission announces an open competitive examination for chief bacteriologist, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Bacteriological Laboratory of the Bureau of Chemistry, Department of Agriculture, Washington, D. C., at \$3,500 a year and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer or promotion.

The duties of this position will be to direct all bacteriological and a portion of the fermentation work of the Bureau of Chemistry; to direct the work necessary in controlling the bacteriological purity of interstate shipments and importations of foods; to carry on all investigations of a bacteriological nature connected with the enforcement of the Food and Drugs Act, and to carry on other investigations connected with the agricultural chemical work carried on by the Bureau of Chemistry.

Competitors will not be assembled for examination, but will be rated upon the following subjects, which will have the relative weights indicated:

Subjects.	Weights.
1. General education and scientific training.....	40
2. Practical experience and fitness.....	30
3. Publications along bacteriological or pathological lines.....	30
Total .....	100

An educational training equivalent to that required for an M. D. or Ph. D. degree from a college or university of recognized standing, and at least seven years' practical experience in bacteriological and pathological work involving original investigations, since receiving such degree, are prerequisites for consideration for this position.

Statements as to training, experience and fitness are accepted subject to verification.

Applicants must have reached their thirtieth but not their fiftieth birthday on the date of the examination.

Under an act of Congress applicants for this examination must have been actually domiciled in the State or Territory in which they reside for at least one year previous to the date of the examination.

Recently the Commission has obtained an appropriation whereby it is now able to have as examiners on various scientific, technical and professional subjects, men who are recognized authorities in such subjects. In passing upon the qualifications of candidates in this examination the Commission will have the assistance of an expert examiner who has been thus secured.

This examination is open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for Form 304 and special form to the United States Civil Service Commission, Washington, D. C.; the Secretary of the Board of Examiners, Post Office, Boston, Mass.; Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, Ohio; Chicago, Ill.; St. Paul, Minn.; Seattle, Wash.; San Francisco, Cal.; Customhouse, New York, N. Y.; New Orleans, La.; Honolulu, Hawaii; Old Customhouse, St. Louis, Mo., or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed and filed with the Commission at Washington with the material required, prior to the hour of closing business on October 6, 1913. In applying for this examination the exact title as given at the head of this announcement should be used.

Issued August 28, 1913.

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### Deaths

**Duff W. Greene, M. D.**, Medical College of Ohio, Cincinnati, 1876; of Dayton, Ohio; a fellow of the American Medical Association; a specialist on diseases of the eye; a member of the Medical Staff of the National Military Home, Dayton, for 29 years, and for 27 years chief of the ophthalmologic staff of St. Elizabeth's Hospital, Dayton; died suddenly in his automobile, August 16, from heart disease, aged 62.

**William H. Busch**, of Sandusky, died Aug. 22, from cancer.

**Benjamin F. Miller**, Medical College of Ohio, 1857; of Cincinnati, formerly a member of the Cincinnati Hospital staff and during the Civil War a surgeon in the army; died suddenly August 23.

**A. O. Palmer**, formerly of Warren and Cleveland, but for past year a practitioner in Akron; died August 21.

**E. E. Tope**, of Scio, died August 24.

**Thomas Langan White**, Jefferson Medical College, 1874; of McKeesport; died suddenly August 24, from pneumonia, aged 59.

**Absolem Pearson**, Cincinnati College of Medicine and Surgery, 1880; pioneer physician of North Darke County, of New Weston; died suddenly August 6, aged 73.

# The Cleveland Medical Journal

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VOL. XII

SEPTEMBER

No. 9

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## Typhoid Fever in Cleveland in 1912

By W. P. ELLIS and R. G. PERKINS, Laboratory of Hygiene, Western Reserve School of Medicine

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The study of typhoid fever in Cleveland for 1912 is of especial interest since this is the first calendar year in which hypochlorite disinfection of the water supply has been practically continuous, and also since the complaints arising from the presence of the hypochlorite led to the employment of outside assistance, in an investigation of the question. For discussion of this, the reader is referred to last year's report.

### Sources of Information

Reports of cases and of deaths to the Health Department.

Examination of Hospital reports for additional cases and details of other cases.

Water reports of City Laboratory.

Reports of Water Department, especially in regard to use of hypochlorite.

Weather Bureau reports.

To these reports and to those who made them readily accessible our acknowledgements are here made.

### General History of 1912

The winter was one of very unusual severity and the period in which the lake was covered with ice was very long, covering practically the entire period of the consultant's examinations.

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*Note—This article follows that of Jackson and Perkins on Typhoid in 1911, published in the JOURNAL for November, 1912, and is part of an annual series on the local typhoid question. The work of W. P. Ellis was done as a thesis for the regular course in Hygiene.*

The general rainfall was rather less than in the preceding year, and there was no such series of autumn storms as was noted in 1911. The onset of cold weather was rather late, Indian Summer persisting until well on into November. The early winter was very mild, no ice being formed on the lake until after the first of 1913.

During the spring and the summer a *fly campaign* was instituted and many of the open privies were closed. The attack on the early fly, left over from the previous season, was especially active and an appreciable diminution in the number of flies was said to be noted during the summer months, as compared with previous years.

As regards the *water supply*, the administration of hypochlorite begun in September, 1911, was continuous, with the exception of about twenty-four hours. Previous to this occasion, which occurred on February 22, the daily dosage had been 0.6 to 0.8 parts per million with occasional variations, due to difficulties in mixing, amounting to 0.1—0.2 parts per million. At this time a thaw began, followed by a marked turbidity of the water, and an offensive oily taste, thought by the water department and by Jackson to be due to impurities in the hypochlorite. Later investigation showed that the rest of the consignment was all right and that another portion of the same batch which had been sent to Indianapolis was also satisfactory, so that either there must have been only two or three drums defective, all of them used on the same day, or the taste must have been due to some other material in the water, independent of the hypochlorite. Inasmuch as the same taste had been noted in 1910 under similar weather conditions and before the use of hypochlorite had been begun, it has seemed more probable to some of us that it was due to the same cause, namely to trade wastes in the Cuyahoga River. At the suggestion of the consulting expert treatment was withdrawn for about twenty-four hours, and then resumed at a rate of about 0.4 parts per million, which for the rest of the year was seldom exceeded and which frequently fell to 0.2 parts or even lower. It may be noted in passing that the recommendations of Dr. Haskins and one of us were that the rate *should never fall below* 0.7 parts per million except *possibly* when the water was warmest.

At the time of the winter investigation the arrangement of

the dosage was altered, the point of treatment being moved forward so that samples of untreated water could be obtained for examination, this having been impossible when the treatment was begun at the bottom of the main shaft, as originally planned.

### Analysis of Data

The cases as reported to the Health Department were taken and checked for duplications, dates, etc., and were further checked against the various hospital reports, to complete the

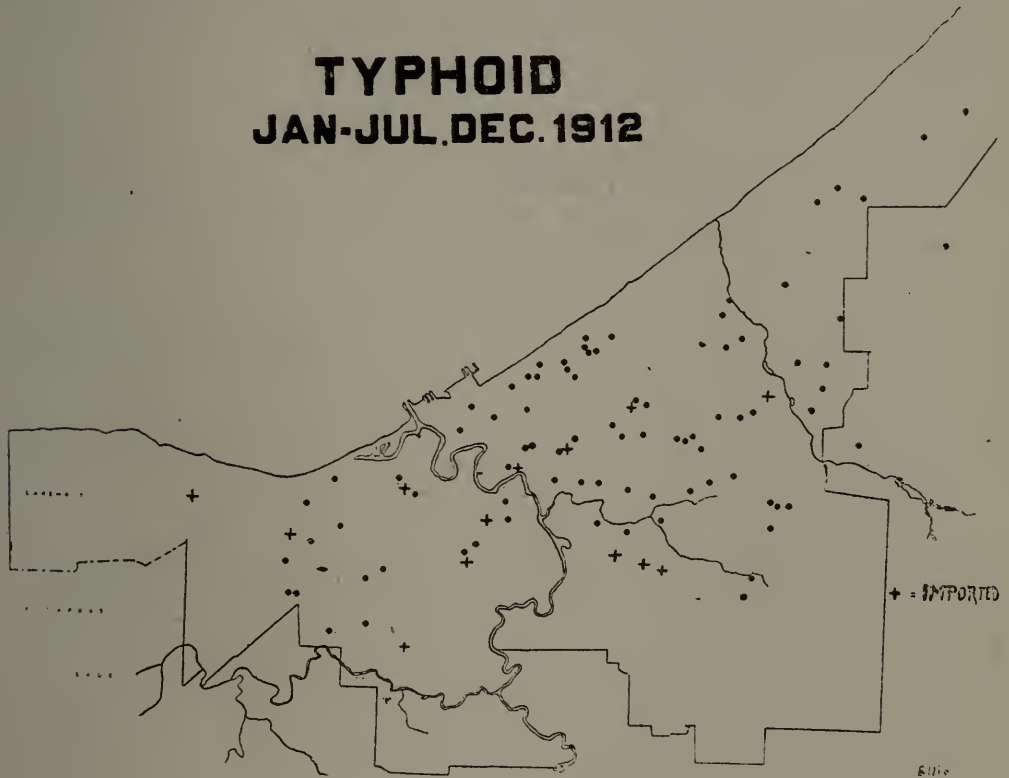


CHART I.

number of actual cases. It was found that 77 cases or nearly 27 per cent of all, had not been reported, though all deaths had been sent in.

Cases which had been out of town for a notable part of the three weeks preceding illness were classed as imported, though the fact that the date obtainable was that of *reporting* and not that of *incidence* makes this part of the record less accurate than we could desire. (For the 1913 report, now in process of preparation, the date of *incidence* is being more carefully obtained.) These cases have been omitted from statistical calcula-

tions though it must be remembered that their presence added to the amount of typhoid organisms reaching the lake.

Each case was located on the map of the city, and different colored pins were used to indicate seasonal distribution, and imported cases.

The year was arbitrarily divided into two parts, those cases occurring in January, February, March, April, May, June, and December being given one color as coming in a season when fly transmission could be practically excluded, while the cases in July, August, September, October and November were at least possibly of fly etiology. (Charts I and II.)

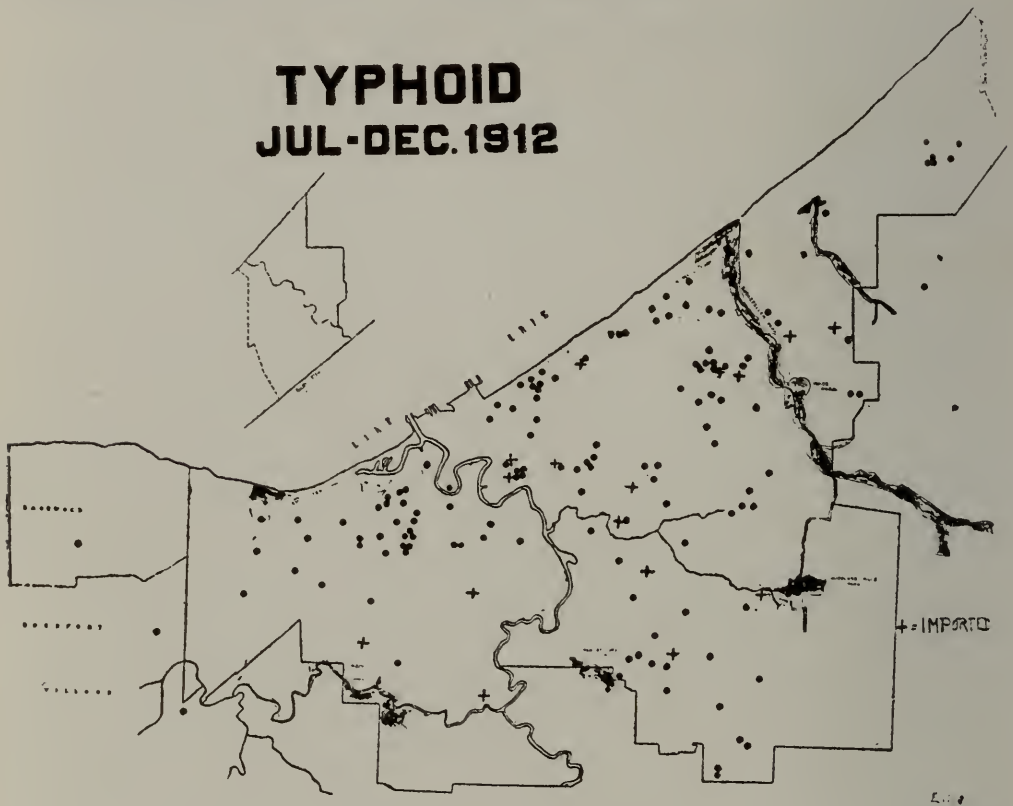


CHART II.

Where the cards showed sex and age, these were tabulated and percentages cast. The various etiological factors were separately analyzed, and compared with those of the previous year.

In addition charts were prepared showing the weekly incidence and the apparent relation to changes in the weather or changes in the administration of the hypochlorite. Charts of the pollutions of the city water as noted in the City Laboratory were also prepared and these charts are presented with the article. (Chart III.)



Cases reported by months in—

	1910	1911	1912	1912 Corrected
January	24	32	19	24
February	16	23	6	7
March	38	49	13	20
April	102	37	17	22
May	25	27	15	23
June	18	40	11	17
July	22	24	23	31
August	95	80	27	41
September	123	167	47	58
October	104	62	47	62
November	48	38	21	27
December	41	18	14	19
	<hr/> 656§	<hr/> 597	<hr/> 260	<hr/> 351
		25*	17*	
			77†	
		<hr/> 622	<hr/> 354	
			3‡	
			<hr/> 351	<hr/> 351

Deaths by months in—

	1910	1911	1912
January	11	4	2
February	6	3	1
March	4	4	0
April	14	9	3
May	8	2	4
June	2	7	3
July	4	4	5
August	5	7	3
September	15	16	3
October	14	8	6
November	12	8	4
December	10	2	3
	<hr/> 105	<hr/> 77	<hr/> 37
		7 Imported (?)	2 Import- ed (?)
		<hr/> 70	<hr/> 35 Total

AGE AND SEX

In 318 cases the age and the sex were given, and analysis shows the percentages to be as follows:

Ages	Males—1912	1911	Females—1912	1911
1-5	0.66	0.97	1.88	3.38
5-10	5.00	3.03	3.10	11.52
10-20	16.00	9.01	9.40	15.46
20-30	24.45	13.47	10.65	15.46
30-40	10.34	5.83	3.76	7.39
40-50	6.00	3.52	1.56	6.38
50-60	0.33	1.35	1.56	2.32
60-70	0.33	0.22	0.66	0.69
70-	0.33	0.00	0.66	0.00
	<hr/> 66.46	<hr/> 37.40	<hr/> 33.23	<hr/> 62.6

\*Deaths not previously reported as cases.

†Unreported cases.

‡Two duplicates, and one case incorrectly reported as typhoid.

§Uncorrected from 1910 Health Report.



### Imported Cases

Under this heading were classed those cases noted by the sanitary inspectors as having arrived in Cleveland three weeks or less before the onset of disease, and those having spent *more than one-half* of the three weeks preceding illness away from town. Of these two groups there are 27, and in addition there are 9 who spent less than half the incubation period out of town. There were also 11 cases at the United States Marine Hospital, about which there is no information leading to their classification, though it is likely that the majority of them would have come at least among the probably imported cases. It must be kept in mind that these men were of a class which is not wont to take sanitary precautions and would therefore have been exposed to *any* etiological factors in Cleveland during their presence here. Among all these there were, however, only two deaths, a mortality among imported cases of 5.4 per cent of all deaths from typhoid, as compared with 13.2 per cent in 1911.

### Etiology

*Milk and Food.* The distribution of cases is not such as to indicate the development of cases from any milk dealer or group of dealers, nor from any special source of food supplies, though it is of course possible that there may have been occasional cases from these causes. It is, however, fairly certain that these were few in number and sporadic in character.

*Ice.* Most of the ice sold in Cleveland is artificial, and no evidence could be found leading to suspicion of the quality of the ice used for domestic purposes.

*Contact.* Jackson attributes 45 per cent of all cases to this cause, apparently on the basis that he is unaware of other reasons for their occurrence. It would, however, appear necessary that there should be some sequence in the same house or in the same immediate neighborhood, or that there should be apparent relation to some possible carrier before so very large a proportion of all cases could be set down to this cause. Investigation according to dates and place of residence showed few cases which could be, with any reasonable probability, attributed to this cause. In several houses there were several simultaneous cases, and in three or four places one case succeeded another within a time limit which was strongly suggestive, but the number which were suggestive was very small, and it would appear to us that any such estimate at 45 per cent was excessive, and rather in the

line of guess work. Moreover these related cases occurred mainly in the summer epidemic and in unsanitary neighborhoods where there were so many possible factors in transmission that one would find it hard to make a choice.

As to *Carriers*, while statistics in other places show that there must unquestionably be many such in Cleveland, no satisfactory opportunity has been found to make any sort of a scientific investigation. No conspicuous foci, occurring from year to year in connection with houses or individuals, were noted. This is, of course, only negative evidence.

*Flies.* The fly question in Cleveland, and indeed in other cities at this latitude, is not as important as further south and Bolduan in his report to the New York Board of Health,\* is of the opinion that the relation of the fly to typhoid in our climate, and notably in New York, is by no means as large as has been urged by Jackson and others. There are many flies and in some parts of the city there are many unconnected privies, in addition to feces exposed in alleys and vacant lots, but it must also be remembered that in these districts there is for the most part abundant food for flies outside the privy, so that they are not dependent on the material therein contained for their sustenance, and also that many of these unconnected privies are in the form of covered cess pools, sufficiently dark inside to discourage the entrance of flies save in extremity. The active fly campaign in the early part of the summer caused reduction in the number of the pests and there is a strong probability that part at least of the diminution of the fall epidemic was due to this.

On the other hand there is a large part of the year in which the fly question is non-existent, and there is also a part of the year when *the fly is present but there is no epidemic*.

Consideration of the chart shows that throughout the winter months the cases are scattered and no neighborhood collections are found, indicating the probability of a central source of infection rather than of a number of local foci. In the summer there are several groups, one in the Haymarket district, one in the vicinity of Melrose and Cory Avenues, and others along Hamilton, Lakeside and St. Clair Avenues in the vicinity of Twenty-first Street. It must also be kept in mind that these are some of the most heavily populated parts of the city, and that one has a right to expect them to show here a larger number of cases. One of the

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\*New York City Department of Health, Monograph No. 3, Page 41.

most illuminating things in connection with this question is the fact noted last year, and repeated this year, that there were *no secondary rises* in the fall epidemic; but that there was a steady decline to a base line. In previous years it was the rule to have one or more secondary rises and these were attributed by Jackson to the secondary batches of flies in the Indian Summer period. This would of course make such rises independent of any treatment of the water, since they would be direct transfers from fecal matter to food. Since the introduction of the chlorine there have been none of these secondary rises so that it is probable that some other cause was at work rather than flies.

*Water.* Consideration of the chart will show that while there had been a continuous drop since the installation of the chlorine plant until the reduction of the mortality to zero in March, after the reduction of the chlorine dosage which took place in the end of February there was a steady rise of the base line, though no actual epidemic appeared until fall. This steady rise indicates of course a progressive increase of cases and consequently a progressive increase of pollutions of the water in the river, with consequent rise of pollutions at the intake.\* The time was therefore ripe for an epidemic, if the water was carried to the crib, and from analogy here and elsewhere, it appears probable that a moderate amount was constantly being so carried, resulting in cases among the most susceptible. The fall epidemic was lower than it had been since the change of water supply to the new crib, and ceased gradually without return.

It is of interest that the fly epidemics should so fall even though the fly and the food still continue in evidence, and it is also interesting to conjecture why, if 45 per cent of cases are contact, there should be this steady fall in spite of the increased number of those able to transmit the disease.

Consultation of the laboratory charts showing the pollutions in the water suggests two main things—on the one hand, that for a large proportion of the year there is actual pollution of the water, even after treatment with a low dosage of hypochlorite; and, on the other hand, that the infections of the supply are not uniform, but come, so to speak, *in masses*. This is indicated by the fact that in the two raw water samples taken on the same day from the same place but at different times, it is compara-

\* (The floods of 1913 with the resulting turbidity and typhoid epidemic have finally proven that Jackson was in error when he stated that pollution could not pass a two mile limit.)

tively rare that the tests give the same results, and also by the fact that the samples of *treated water* which must needs correspond to different masses of the tunnel water, show a similar discrepancy. If this occurred occasionally it would be less worthy of consideration but the frequency has been such that it is almost the rule. Apparently, with a given chlorine dosage, of a *degree able to give only a partial disinfection, when the water coming from the lake is moderately polluted the disinfection is effective, but if a mass of water with higher grade of pollution arrives, part of the organisms get past. This indicates, of course, that the dosage of hypochlorite to be effective must be such as to control these periods of greater infection, or it will not serve its purpose.*

### Summary and Conclusions

Typhoid in Cleveland in 1912 showed a diminution of nearly one-half in the reported incidence and one-half in the number of deaths. Comparison by months shows that this change is accounted for, by the absence of a winter epidemic, and a marked diminution in the fall epidemic, as well as a lowering of the totals all along the line.

There was a marked increase in population during this period, and the only sanitary change of extensive influence was the disinfection of the water supply, begun in September, 1911, though the active fly campaign in the early part of the summer must not be forgotten.

After the diminution in the chlorine dosage in February there was a steady rise in the typhoid incidence though the small amount of cases in the city made the total possible pollution of the lake smaller than in previous years. This rise has continued ever since (chlorine dosage being always below recommended figure), until the time this article is submitted for publication (September, 1913), conditions are not very dissimilar to what they were before the beginning of the treatment of the water.

It therefore seems reasonable to conclude that the diminution noted immediately after the inauguration of the disinfection treatment, and persistent to a degree roughly comparable to the adequacy of the chlorine dosage, was closely related to this treatment, and that the relation of the main periods of infection of the water as noted in the City Laboratory to the increases in the typhoid incidence are further evidence of a constant and variable water infection of a dangerous type.

The original contention that unless an amount equivalent to 0.7 parts per million of actually available chlorine was used in the treatment the results would be unsatisfactory, appears to be borne out by the chart, and is further confirmed in a general manner by the findings in other cities where an amount equal to or greater than this has been found essential for successful disinfection. A weak dosage cares only for those periods in which the water actually coming in contact with the disinfectant is weak in bacteria and organic matter and the results of laboratory tests show that the variation in the quality of the water may be almost hourly in character.

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**Disease Superstitions.**—The belief is common among primitive and unlettered people that there is a specific remedy that will cure every disease of the body, if it can only be found.

Ignorant and superstitious people are peculiarly and pathetically susceptible to the persuasion of quacks who profess to have found the healing herb for their particular disease, and will go on squandering money and health after being defrauded a dozen times, because in their simple and pitiful faith they think each time, "Now, maybe, this man has found the real herb that will end my suffering."

This credulity is a matter for patient teaching. The health of the people is a national asset beyond the measure of dollars, but even the economic loss from avoidable sickness and death runs into unbelievable figures. The people must be carefully taught—not casually told—that disease is not an accident, not a dispensation of Providence or the infliction of an evil spirit, but the result of environment and of the mode of living. They must learn that health does not return by magic or by magic compounds; but it must be restored by a personal battle against disease.

Generous physicians, newspapers and journals, and social workers who are giving their time and means to fight the powers that prey, and to spread the gospel of health, realize that education is slow. Thousands are saved every year, but it will take a long, strong effort to reach all the people with the truth. If ever there was an unselfish effort, and one of supreme importance to the country, it is the battle for national vitality.

What about the national health department at Washington?—*Collier's*.

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**Vaccination For Typhoid.**—In the reports of the Medical Corps of the United States Army, it is claimed that typhoid fever has been forever vanished from the army through vaccination. During the past four years over 200,000 persons have been vaccinated without a death or serious results.

Major Frederick F. Russell of the Medical Corps summarizes the results secured through vaccination. "In 1902, with an enlisted strength of 80,778 men and officers, there were in our regular army 565 cases of typhoid. In 1909, out of 84,077 men there were 282 cases. In March, 1909, vaccination was begun, but the number vaccinated that year, 830, was too small to affect the ratio. In 1910 over sixteen thousand were vaccinated, and at once the number of typhoid cases began to diminish. In 1911 there were only 70 cases. In the same year vaccination for typhoid was made compulsory on all persons in military service and on all recruits. In 1912, the first year in which the entire army was immunized, there were only 27 cases, the last one occurring December 19, 1912. Since that date, there has not been a single case of typhoid in the army."

If the above report is correct it seems it would warrant a special session of the anti-vaccination society.

## The Value of Radiographs in the Diagnosis of Mastoiditis

By J. M. INGERSOLL, A. M., M. D., Professor of Oto-laryngology in the Medical Department of Western Reserve University, Cleveland

There are certain well known indications of acute infection of the mastoid which constitute the classical symptoms of mastoiditis. Frequently the first symptom which suggests mastoiditis is a profuse purulent discharge from the ear continuing, unabated, in spite of careful treatment. This profuse discharge cannot come from the middle ear alone and so must be caused by an infection in the mastoid.

Tenderness over the mastoid antrum or tip is usually present and is another early symptom of mastoiditis. The mastoid antrum is always inflamed in an attack of acute otitis media and is painful on firm pressure but this inflammation subsides in a few days, if the bone is not infected, and the tenderness then disappears. Swelling of the posterior superior canal wall is caused by inflammation in the cells between the canal and the antrum and is a positive sign of mastoiditis.

Stiffness of the sterno-cleido-mastoid muscle, especially at its attachment to the tip of the mastoid, indicates an infection in the mastoid with consequent inflammation in the muscle. A rise of temperature speaks for mastoiditis but a normal temperature does not exclude it. Marked deafness, in acute cases, indicates mastoiditis for the deafness is caused by inflammation around the ossicles in the attic and shows that the infection has extended beyond the middle ear.

When the inflammation has extended through the mastoid cortex, or the pus has ruptured the cortex, causing post-auricular swelling and displacement of the ear, then the diagnosis of mastoiditis is so evident that a blind man can see it with his stick, and the chances of a speedy recovery with good hearing are much less than they are in the cases which are diagnosticated and operated early.

The most dangerous mastoid infections are those which cause few or no external symptoms, for in such cases the mastoid cortex is dense and hard and the infection extends into the cranial cavity, along the line of least resistance, causing brain abscess or sinus thrombosis. Swelling and fluctuation over the mastoid indicate that the pus has already extended toward or broken

\*Read before the Ohio State Medical Association, September, 1913.

through the cortex and such cases may rupture externally and heal spontaneously.

To recapitulate briefly, in an acute otitis media, slight pain, slight deafness and slight rise of temperature all speak for a mild infection without mastoid involvement. A profuse purulent discharge, foul pus early, bulging of the posterior canal wall, fixation of the sterno-cleido-mastoid muscle, marked deafness, continued or severe pain, with or without a rise of temperature, all speak for mastoiditis.

In addition to these symptoms, a radiograph gives very positive information in regard to the condition in and around the mastoid. A normal mastoid shows a very clear cut picture in which the mastoid cells can be seen distinctly. Even the thin bony partitions between the cells show very clearly in most cases, and the difference between a pneumatic mastoid with its large cells, and the small cells and dense bone of a sclerotic mastoid, is very evident.

An inflamed mastoid, which contains pus or granulation tissue, gives an entirely different picture. The inflamed area produces a blurred, hazy picture, which is in marked contrast with the surrounding normal bone. The partitions between the cells are hardly visible or cannot be seen and the mastoid looks like a homogeneous mass. If the normal and infected mastoid are taken on the same plate, the difference between the two, shows very distinctly and the normal one furnishes a valuable standard for comparison. The position of the sigmoid and lateral sinuses can usually be seen.

In a stereoscopic radiograph much more valuable information is obtained. The sigmoid sinus can always be seen and its relation to the mastoid cells can be clearly determined. The floor of the middle cranial fossa can also be seen and its position, relative to the posterior root of the zygoma and the antrum and the middle ear, can be defined. If the dura or the sinus have been exposed by necrosis, the break in the continuity of the bone can be seen and a positive diagnosis of exposure of these structures can often be made early, before there are any clinical symptoms of such a condition.

A stereoscopic radiograph also gives one the advantage of being able to examine the mastoid bone from the cranial as well as the external side. It is very much like being able to take the

temporal bone in your hand and study it from both sides before operating upon it.

The position of the sigmoid sinus, and areas of necrosis if there are any, can usually be studied most advantageously by looking at the stereoscopic picture from the cranial side. Then by reversing the plates in the stereoscope the whole field of the operation can be studied so that the surgeon begins the operation with definite knowledge in regard to the extent of the involvement of the mastoid, the location of the sigmoid sinus, the floor of the cranial cavity and any areas of necrosis exposing the sinus or dura.

The following case reports illustrate the value of radiographs in making a diagnosis of mastoiditis.

Case 1. Female, nineteen years old. Acute otitis externa and media for three days with decided tenderness and slight swelling over the mastoid antrum and tip. Spontaneous nystagmus to the left which was very markedly increased by the turning test. Temperature 99 degrees. Bulging of the posterior and superior part of the canal wall. The tenderness over the mastoid antrum steadily increased for three days but a radiograph showed that the mastoid cells were normal and so the tenderness over the mastoid and the swelling in the canal wall were attributed to the external otitis. This interpretation of the symptoms proved to be correct, for recovery was complete in two weeks.

In this case, the radiograph positively excluded a mastoid infection although the tenderness, nystagmus and bulging canal wall, all suggested very decidedly such an infection.

Case II. Male, forty years old. Profuse purulent discharge from right ear for six weeks. Tenderness over antrum on slight pressure. Sterno-cleido-mastoid muscle rigid. No spontaneous nystagmus. Turning test normal. Temperature normal.

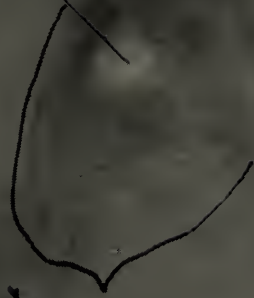
The stereoscopic radiograph showed an infection involving the whole mastoid; an exposure, by necrosis, of the dura over the middle ear and antrum and a similar exposed spot over the sigmoid sinus. On account of the condition shown in the radiograph, an immediate mastoid operation was urged, in spite of the fact that there were no clinical symptoms of irritation or infection of the brain or sinus. The operative findings confirmed the conditions shown in the radiograph. The wound was packed wide open, because the sinus and the dura were exposed and the recovery was uneventful. In this case the radiograph showed an ex-



II. Normal mastoid (right).  
Small mastoid bone.

Mastoid cells with  
partitions between  
them showing

Auditory canal



W. H. Cleveland

Radiograph of Normal Mastoid (right) Case III

Infected mastoid (left).

no mastoid cells visible  
small mastoid bone  
area of necrosis over  
the sigmoid sinus

Subtort  
Caval

Jan 25 1914

Radiograph of Infected Mastoid (left) Case III.

posure of the sinus and the dura and the early operation probably prevented a brain or sinus infection.

Case III. Male, thirty years old. Acute otitis media for ten days. Discharge from ear gradually decreasing. Some granulation tissue projection through the perforation in the drum membrane. Some swelling of the posterior superior part of the canal wall. No pain over the mastoid. No spontaneous nystagmus. Turning test normal. Temperature normal.

A radiograph showed that all of the mastoid cells were infected, that the sinus was exposed just below and posterior to the mastoid antrum, also that the sinus was situated well forward close to the antrum and that the mastoid bone was very small.

All of these conditions were confirmed by the operative findings. The recovery was a normal one.

The stereoscopic pictures in these cases were similar to those in many other cases and they illustrate the decided value of such pictures in determining the condition of the mastoid bone and in making a positive diagnosis of mastoiditis or exposure of the brain or the sinus by necrosis, or the exclusion of such conditions.

I wish to acknowledge my indebtedness to Dr. W. C. Hill and Dr. C. F. Thomas and Mr. John Olivenbaum for their interest in the radiographic work, all of which was done by them.

### Medical Milk Commissions and Certified Milk

The first bulletin in the new departmental series of the U. S. Department of Agriculture is a contribution from the Bureau of Animal Industry entitled Medical Milk Commissions and Certified Milk; this is a revision of a previous bulletin on the same subject.

The organization and objects of the first milk commission are described and the origin and meaning of "certified milk" are set forth. The word "certified" has been registered in the U. S. Patent Office and may only be used by a duly organized medical milk commission.

The first milk commission was organized in 1893. Since that time over 60 commissions have been established, but nearly one-third of that number are inactive at present.

About 125 dairies are engaged in producing certified milk and the daily production is nearly 25,000 gallons, an increase of 300 per cent in five years. While this seems a remarkable increase, it should be remembered that only about one-half of 1 per cent of the total milk supply of the country is certified.

While the chief demand for certified milk is for infants and sick people, it further serves to teach the public the value of careful methods in milk production and the extra cost of absolutely clean milk.

The bulletin describes the equipment and methods necessary for the production of certified milk. It is pointed out that expensive equipment is not a necessity so much as a careful and unremitting attention to details.

In 1907 the American Association of American Milk Commissions was organized. The methods and standards for the production and distribution of certified milk adopted by this association at its 1912 meeting are given in the appendix to the bulletin.

## The Causes of Continued Fever in Children

By JOHN PHILLIPS, M. B., Cleveland

In the treatment of various disorders in children, one of the most puzzling problems that confronts the physician is the determination of the cause of continued fever. The most common causes of continued fever in childhood may be classified as follows:

1. General infectious diseases such as typhoid, malaria, tuberculosis, influenza, septicemia syphilis.
2. Infections of the nose with its accessory sinuses, the ear and tonsils. This would include naso pharyngitis, infections of the antrum of Highmore, the ethmoidal and sphenoidal and frontal sinuses, otitis media with or without mastoiditis, and chronic tonsillitis.
3. Oral infections, particularly pyorrhea alveolaris.
4. Glandular inflammations, such as cervical adenitis or inflammatory conditions of the mediastinum and retroperitoneal glands, tuberculous peritonitis.
5. Diseases of the lungs and pleura, especially empyema bronchiectasis and abscess of the lung.
6. Chronic endocarditis and pericarditis with effusion.
7. Chronic appendicitis, constipation, colitis, starvation.
8. Infections of the urinary tract and vagina, pyelitis, nephritis, cystitis, gonorrhoeal vaginitis.
9. Diseases of the bones and joints.
10. Anæmic conditions—pernicious anemia, Hodgkins' disease, leukemia, infantile scurvy.
11. Heat congestion due to insufficient radiation as seen in premature infants.
12. Chronic diseases of the brain and meninges—brain abscess, meningitis.

To determine the condition present that is causing the continued fever, a careful history and physical examination is very essential. It seems scarcely necessary to emphasize the importance of examination of the ears and the urine and yet nothing is so frequently neglected. The difficulty of obtaining in the ordinary way a specimen of urine in a baby, probably accounts for the neglect of this part of the examination, and yet this is easily overcome by the use of a small catheter, which should always be a part of the physician's diagnostic equipment. Blood

examination is also necessary to clear up the diagnosis of the obscure conditions, particularly the anemios.

The use of the Roentgen-ray has been invaluable in the diagnosis of diseases of the bones and joints, lungs, mediastinum, and abdominal conditions. I would like to emphasize the importance of rectal examination in children. With one finger in the rectum and the hand on the abdomen, the lower part of the abdomen can be thoroughly explored without any pain to the child, if the finger is well lubricated and passed into the rectum very slowly.

Typhoid fever is not uncommon in children under five years of age. Griffith has collected 325 cases in children under two and a half years. The clinical pictures of the disease corresponds very closely to that seen in the adult, except that the temperature has a tendency to be more irregular, and the abdominal symptoms are not so marked. In cases of continued fever in children due to typhoid, if the leucocyte count, Widal reaction and blood culture are made, these cases are seldom undiagnosed. An objection might be raised that blood culture is difficult in children, but if the basilic vein is not easily found, the blood may be taken from the external jugular vein as advocated by Wollstein.

In localities where malaria is a frequent disease the diagnosis of this condition is not likely to be overlooked, though this is likely to be the case in non-malarial districts where only an occasional case is seen. The examination of the fresh blood smear or the stained film will clear up the diagnosis.

Tuberculosis in children is often difficult to diagnose because the sputum is hard to obtain. In a case of continued fever from this cause, the positive cutaneous tuberculin reaction, the use of the X-ray to confirm the findings of physical examination of the chest, and the swabbing of the throat if the child coughs so as to obtain sputum for examination, will clear up many a doubtful case.

In influenza, a moderate elevation of temperature may be present for several weeks, and the only findings on physical examination may be slight impairment of resonance, and a few crackling rales at the base of one lung. In these cases the history will often help to clear up the diagnosis, especially, if several members of the same family have been taken sick at the same time with this disease. The cases that are likely to run

a long febrile course are those complicated by broncho pneumonia or bronchiectasis.

Septicemia is rare in children and the diagnosis can only be made by blood culture.

Congenital or acquired syphilis may be the cause of continued fever. In the congenital form the symptoms appear from the sixth week to the sixth month. In these cases one sees so well described by Trousseau the typical facies, with yellowish skin, wretched expression, eyelashes wanting, the hair of the head scanty, with patches of alopecia, and later the appearance becomes the well known one of the "little old man." One of the earliest symptoms is the characteristic "snuffles." Fissures or rhagades appear about the corners of the mouth and the anus. Malnutrition and anemia are usually marked. A yellowish red maculopapular erythema, beginning on the buttocks and thighs and extending to the trunk and face is often seen. The psoriaform syphilide, consisting of bright red or copper colored infiltrated areas on the palms of the hands and the soles of the feet, covered by white dry scales, leaving a collarette at the periphery, is very characteristic. Mucous patches occur in the mouth and about the lips, but they show a predilection for the intergluteal groove, the perineal, genital and genito-crural regions. Pemphigus neonatorum is one of the most characteristic lesions. Bony changes, in the form of an osteochondritis, with pain and immobility (syphilitic pseudo—paralysis of Parrot), are not uncommon. Frequently the spleen and liver are enlarged and an orchitis is present. The temperature not uncommonly ranges from 101 to 103 and may be continued for a long time. In the late congenital syphilis one of the most important changes is the almost pathognomonic interstitial keratitis. This with defective hearing, Hutchinson's teeth, and defective development, gives very definite clinical picture. The acquired form of syphilis in children resembles very much this disease in adults and is not uncommonly accompanied by continued fever.

Infections of the nose and allied structures is one of the commonest causes of continued fever especially is this true of naso-pharyngitis. Frequently in the winter months the physician sees children taken ill somewhat suddenly with high fever, rapid pulse, great thirst, noisy respiration, and physical examination reveals an acute inflammation of the naso-pharynx, or what is sometimes called an acute adenoiditis. At first the mucous mem-

brane of the pharynx is dry, later there is considerable secretion of mucous. The glands of the neck are swollen and may attain the size of a pigeon's egg. In these cases, where the glands of the neck are considerably enlarged, the child may run a temperature varying from 100 to 105 degrees Fahrenheit. It is not uncommon to see a normal temperature in the morning, with an afternoon elevation to 105, and this may be continued from two to eight weeks or even longer. I think it is a mistake to classify these cases as glandular fever as the enlargement of the glands is simply the result of the pharyngeal inflammation.

Not infrequently the inflammation spreads from the pharynx to the middle ear. This is more common in children than in adults, because the Eustachian tube is more horizontal and its pharyngeal orifice more patent than in the adult. As a rule otitis media in the child develops quickly and ruptures the drum membrane, but in some cases a low grade of inflammation is present which causes a rise in temperature each day, with very little pain and without rupturing the drum. It is these cases that are so frequently overlooked so that the examination of the ear drums should never be neglected, when the physician is called to see a sick child. In cases with purulent discharge from the ear a temperature of 102 or 103 is not uncommon and may be continued for weeks, especially if there is an accompanying mastoiditis, the same is true of chronic inflammation of the tonsils, occasionally following acute rhinitis in children, infection of the antrum of Highmore, and of the ethmoidal, and sphenoidal and frontal sinuses results. In adults the physician is constantly on the alert for these complications, but in children these possible causes of continued fever are usually overlooked. In children with protracted high temperature the possibility of inflammatory involvement of the antrum and sinuses should be considered and if necessary a skeagram should be taken of the skull. If the latter procedure were more frequently employed these conditions would not be left undiagnosed.

Oral infections, especially pyorrhea alveolaris is not uncommon, particularly among the children of the poor. Abscesses about decayed teeth may cause a long continued high temperature and it is astonishing to see how often physicians, and even dentists, will neglect to care for this condition, even when its presence is noted as illustrated by the following case: A girl, eight years of age was seen April, 1912, because she had an afternoon

temperature of 104. Her temperature in the afternoon had ranged between 102 and 104 for two weeks. She was very pale, had no appetite, and no cause for the temperature could be found on physical examination, except, that from three decayed teeth on the right side of the lower jaw, considerable pus exuded on pressing on the gums. She was referred to her dentist, who said that the condition present was not serious enough to account for her temperature, and dismissed her. The temperature persisted, and two days later she was referred to another dentist, who drained several pus cavities, and within 24 hours her temperature dropped to normal and there remained.

In acute inflammation of the lymphatic glands, particularly inflammation of the glands of the neck, which is such a common sequel of acute pharyngitis, continued elevation of temperature is very frequently seen. In these cases the glands at the angle of the jaw are enlarged, hard, and very painful at times, especially on movement of the head, because of the relation of the swollen gland to the sterno-mastoid muscle. In only a small proportion of cases does suppuration occur. One striking feature, too, is the marked change in size that may take place in the gland within a few hours. Thus in the morning the gland may be much reduced in size and only slightly tender; at this time the temperature may be normal. In the afternoon the gland often increases greatly in size, is very hard and painful, the child very drowsy, and the temperature 104 or 105 degrees. Not infrequently this afternoon temperature varying from 103 to 105 may persist from four to six weeks or even longer. In other cases there may be only a slight rise in temperature to 101, which persists over a long period of time. If the glands are tuberculous suppuration usually occurs.

In cases where the mediastinal or retroperitoneal glands are involved, the difficulty in diagnosis is much greater. In contrast to the cases of cervical adenitis, the involvement of the bronchial lymph glands is usually due to tuberculosis. True many of the cases of cervical adenitis are also due to tuberculosis, but frequently they are due to some other form of infection. Three groups of bronchial lymph glands have been described. The first group or peritracheal lymph glands are in close relation with the superior Vena cava, the pulmonary artery, the vagus, and recurrent laryngeal nerves; the second group at the bifurcation of the trachea, with the oesophagus, vagus nerve, and aorta; the third



group, with the bronchi, and branches of the bronchial and pulmonary arteries and veins. All these groups are usually involved at the same time but those belonging to the right lung more than those of the left. All the structures in relation to these glands may be involved, with symptoms corresponding to the structure involved as a result. As the glands soften, ulceration may take place into the trachea, bronchi, blood vessels, or oesophagus. If suppuration occurs a mediastinal abscess results. In these cases careful physical examination of the chest, together with the X-ray for confirmation, will usually clear up the diagnosis.

Many cases of obscure abdominal disease, with fever, pain, tenderness in the abdomen and with diarrhoea are often due to inflammatory conditions of the retroperitoneal glands. Pathological changes in these glands should always be considered as a possibility in any case of continued fever in children. Tuberculosis of the peritoneum often accompanies involvement of these glands.

Tuberculosis of the lungs is the most common cause of continued fever, where disease of the lungs and pleura is at fault. Frequently, however, in broncho-pneumonia, and occasionally in lobar pneumonia when resolution is delayed, the temperature may show considerable elevation for four or even six weeks, as Riesman has recently emphasized. The same is true of chronic pleurisy with or without effusion. However, in each case of unresolved pneumonia the physician should be on the alert for empyema. This may be detected by physical examination, but in cases of doubt, exploratory puncture should always be resorted to. If the accumulation of pus is interlobar, it may not be reached by needle and in these cases, as in abscess of the lung, an X-ray picture of the chest will clear up the diagnosis. Bronchiectasis more frequently follows influenza than any other form of infection because the walls of the bronchi are weakened from the inflammation extending deeply. Therefore, in cases of influenzal bronchitis, if the fever persists for a considerable time, and is accompanied by cough with large amount of expectoration, especially, if there are signs of small cavities at the base of the lung, bronchiectasis can be positively diagnosed. In children occasionally very extensive bronchiectasis is sometimes seen.

In chronic infective endocarditis at first fever may be the only striking symptom. In some cases there may be chills at

onset, so that a suspicion of malaria may be aroused. The heart features may be so slight that they are entirely overlooked. For months—six, eight or even twelve—the fever may continue. During the later periods of the disease embolism may occur in different organs.

In certain cases of pericarditis with effusion, where the latter takes place slowly, and where absorption is also slow I have seen fever persist several weeks.

In children chronic appendicitis may cause a moderate elevation of temperature extending over a period of weeks or even months. As a rule the symptoms are very obscure. The appetite very often is poor, and the taking of food may be accompanied by nausea or pain, which lasts only a few minutes, and is relieved by the passage of flatus or by an enema. Frequently, too, the bowels are alternately constipated and loose, the stools in many cases showing mucus. The child may be pale and lose weight. The presence of tenderness in the region of the appendix with some rigidity, reveals the nature of the trouble. It is astonishing in these cases to see the marked improvement in the general condition of the child following the removal of the appendix.

Chronic constipation may also cause continued fever of a low grade. The same is true of chronic colitis. In the latter cases large quantities of mucus are usually passed.

Holt and others have called attention to the occurrence of so-called inanition fever. This may be seen in new born infants before the milk has come into the mother's breasts, but occurs also in babies where the child is losing in weight, because the mother has insufficient breast milk. In the latter cases the bowels are often loose and the stools contain mucus. The bowels at once become normal, and the temperature drops, as soon as the mother's nursing is supplemented by artificial feeding.

In cases of infection of the urinary tract, the most common cause of which is the colon bacillus, a continued elevation of temperature ranging from 100 to 105 degrees may extend over a long period of time. Usually female children are affected. The child is drowsy, the respirations rapid, often sighing and irregular, and there is pain on urination. Occasionally there is abdominal pain. These cases may simulate very closely meningitis, as sometimes the rigidity of the neck is marked and there may be some spasticity of the lower extremities. Three times during the past year I have seen cases in consultation where the

attending physician thought he was dealing with a case of meningitis, and in which the passage of a catheter revealed a turbid urine containing pus cells and colon bacilli, the symptoms rapidly clearing up with urinary antiseptics. The following case seen in consultation will serve as an example: Female child, aged two years, was seen July 11, 1913. For two weeks she had been drowsy, feverish, and refused to eat. Her physician saw her first on July 10, and at that time the child was very pale and stuporous; there was semi-rigidity of the neck, arm, leg and lumbar muscles. With the exception of a few râles at the base of the right lung, there was nothing of further importance in the physical examination. The urine on catheterization showed a heavy trace of albumin, many pus cells and motile bacilli. Potassium citrate was given and in three days the temperature was normal, and the drowsiness and rigidity had almost entirely disappeared. From this time the urine rapidly cleared up and the child steadily recovered. Another point worth emphasizing in these cases, is that several days may elapse after the first rise in temperature before the urine contains pus cells, only motile bacilli being found.

In acute nephritis and cystitis elevation of temperature is common, but the diagnosis in these cases is easily made from the examination of the urine. Gonorrheal vaginitis is a disease which is not uncommonly seen in the out-patient departments of children's hospitals. This is frequently overlooked because of the age of the child. In this condition the temperature is often moderately elevated during the acute stage of the disease.

In inflammatory conditions of the bones and joints in small children the general symptoms of fever, malaise, and loss of appetite, often precede the localizing symptoms for several days or even two weeks, so that the true cause of the fever may be obscured. Especially is this true of tuberculous disease of these structures. If there is any question of doubt the X-ray examination is of great assistance.

Anemic conditions in children are often associated with fever, particularly in cases of pernicious anemia, leukemia or in the cases of Von Jaksch's anemia, in which the spleen is enlarged. The blood examination is necessary to make a correct diagnosis.

In cases of Hodgkin's disease three different types of elevation of temperature have been described. In the first type the temperature is continuously raised, presenting very slight diurnal

variations of a degree or a degree and a half. The highest temperature is sometimes in the morning, sometimes in the evening. The degree of elevation is usually from 100 to 103. The second type is characterized by morning remissions, the temperatures being always higher in the evening than in the morning. The daily variations are from one to three degrees, the morning temperature being at or below 100—sometimes even normal, and the evening temperature varying from 101 to 103. The third type is marked by periods of pyrexia in which for several days a high temperature is maintained, the daily variations being slight. Alternating with these pyrexial periods are intervals of several days, in which the temperature is normal or slightly subnormal. The temperature during the periods of pyrexia may reach 105. In one case which I have described this type of recurrent fever persisted for nine months (see CLEVELAND MEDICAL JOURNAL, Vol. IX, No. 8, pages 604-617).

In infantile scurvy slight fever is often present for several weeks. Although tenderness in the legs is often the first symptom noticed especially on changing the diapers, yet in most cases a period of indisposition, fretfulness, pallor, and failing nutrition precedes the local symptoms. Later some swelling may be noticed about the ankle joints, the gums are discolored, ecchymoses may appear in various parts of the body, and blood may be vomited or passed in the urine and feces. The immobility of the extremities, the pain and tenderness, sometimes leads to a false diagnosis of acute poliomyelitis.

In premature infants great care is always necessary to maintain the normal body temperature. If the child is too assiduously surrounded with hot water bags, the temperature may rise considerably above normal. Holt mentions the fact that he has seen a fluctuation of 13 degrees from this cause, so that in handling these cases the temperature should be taken at frequent intervals.

Brain abscess often causes a low grade continuous fever. This with the headache may be the only symptom present. The localizing symptoms may be long delayed and in some cases may not manifest themselves before death. I once saw a child twelve years of age, who, for three weeks had fever, headache, with at times mild delirium, in which no cause could be determined until at autopsy an abscess of the frontal lobes was found.

The chronic forms of meningitis may also cause continued fever, but usually the diagnosis is easily made, especially if lumbar puncture is performed.

## The Treatment of Recurrent Malignant Tumors of the Urinary Bladder with the High Frequency or Oudin Current—With a Report of a Case

By WILLIAM E. LOWER, M. D., Cleveland

The recent splendid reports from Genito Urinary Surgeons all over the country on the treatment of the so-called benign tumors of the urinary bladder by the use of the high frequency cautery or Oudin current can leave little doubt that this is the proper method of treating this class of tumors when accessible. The tabulation of cases and results presented by Dr. Edwin Beer of New York City, who first advocated its use is most convincing. My own experience confirms these reports.

The effect of the application of this treatment to malignant tumors has been reported upon by a number of operators and in some cases with apparent cure, but as not sufficient time has elapsed the permanency of the cures still remains in doubt. In many cases the results have been most encouraging and to these reports I wish to add a case which I have had under observation for over two years with no recurrence since the application of the treatment.

The patient, a married man, 48 years old was referred to me by Dr. Walker on account of hematuria.

Family and personal history unimportant, except that eight weeks ago the patient had an infection of his right hand which kept him in bed for several weeks. He denies venereal trouble. No pulmonary, cardiac or gastro-intestinal symptoms.

**Present Illness:** In September, 1909, he first noticed blood in the urine, which has occurred about every ten days since then. Sometimes it is only slight and again the urine may be quite bloody for a day. He voids about every two or three hours and complains of pain when the bladder is distended and during micturition. His general health is fairly good; bowels regular, appetite fair, but he has lost weight and is very nervous.

**Physical Examination:** The patient is a rather poorly nourished middle-aged man. Skin waxy, mucous membrane pale. Eyes, ears, nose and throat negative; neck thin; no glandular enlargement. No abdominal pulsation or venous distention. Thorax long, narrow and symmetrical. Shoulders sloping. Rigid expansion; fair and equal on two sides. Heart normal, impulse strong, no thrill, sounds clear at apex and base. Abdomen pre-

sented negative findings. Genitalia normal. Extremities negative and reflexes active. Hands showed no general enlargement. Patient very nervous.

**Cystoscopic Examination:** Bladder capacity 190 c. c. Introduction of the cystoscope somewhat difficult because of tightness in prostatic portion. On the right side is a mass, part of which cannot be distinctly outlined. It is quite large with broad base and apparently attached near the ureteral orifice.

**Operation:** On June 1st, under nitrous oxide gas and local anesthesia a supra-pubic cystotomy was done. Small median supra-pubic incision through the tissues infiltrated with novocain. Peritoneum reflected from the bladder. Packs introduced. Bladder incised longitudinally. A large papillomatous mass was seen on the right side. The pedicle was large and the base somewhat indurated. Excision with scissors including a wide section of the mucous membrane and sub-mucous layer. The hemorrhage was controlled to a certain extent by catgut suture, but there was still too much oozing to close the bladder and it was temporarily packed with gauze tapes. Dry dressing. He left the operating room in good condition.

**Post-operative Treatment:** The patient was given a large amount of rectal saline and water by mouth. The packs were removed on the next day and very little bleeding noticed. The bladder was then catheterized and irrigated. The patient was reported as doing nicely except for some bloody discharges. On June 5th, he voided a little and a week later was voiding naturally and without pain. Very little urine escaped through the wound. The patient was up and about on the 16th. No leakage of urine; wound healing rapidly; can hold urine normal length of time; no blood. Symptoms entirely gone. Four days later (June 20th) he left the hospital. The following report of the pathological examination was given: The tumor from the bladder had the appearance of a papilloma. It was round and quite soft.

The microscopic examination consists of a very cellular specimen with a small amount of interstitial tissue. The cells are arranged in an arborescent papillomatous formation. In several places collections of definite carcinoma cells are present in and about the interstitial tissue.

**Cystoscopy No. 2. August 3, 1911.** Bladder capacity 300 c. c. Introduction of the cystoscope easy: On the right side

at the site of the former tumor is a recurrent growth, not very large with small blood clots hanging over it. This undoubtedly is a recurrence. The rest of the bladder is quite normal. Palpation by rectum reveals an indurated area.

Within the next six weeks, I applied the high frequency cautery to the bladder tumor five times and observed at this time that the growth was much flatter and paler than it had previously been. I inspected the growth again with the cystoscope five months later, and observed a slight evidence of the growth still remaining. This was cauterized again with the high frequency cautery. From this time on there has been no evidence of recurrence.

**Last Cystoscopy. August 1, 1913.** Bladder capacity 220 c. c. Introduction of the cystoscope difficult on account of some obstruction at the prostatic portion of the urethra. Bladder practically normal. Over the site of the former growth is only a small whitish scar.

A report from the patient a few days ago stated that he was feeling fine, had gained in weight and had no signs of recurrence or discomfort whatsoever in the region of the bladder.

In a rather extensive experience treating tumors of the bladder I have not heretofore been able to successfully remove by a cutting operation a recurrence of malignant tumor, although I have removed large sections of the bladder after recurrence.

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**Child Labor in Georgia.**—At least for another year 10-year-old children, who can neither read nor write, will lend their efforts to increasing the fortunes of the cotton-mill owners of Georgia. The Anderson bill, which raised the age limit for working children to 13 years for 1914 and provided for a further increase to 14 years in 1915, has been sidetracked in the legislature, and the session is about to close. Georgia has made practically no advances along this line since 1906. This is not creditable to the traditional chivalry and civilization of the South.—*J. A. M. A.*

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**Prevention of Infant Mortality.**—The fourth annual meeting of the American Association for the Study and Prevention of Infant Mortality will be held in Washington, D. C., November 14-17, with headquarters at the Willard Hotel. The subjects which will be discussed will include: eugenics, prenatal care and instruction of mother, adequate obstetrical care, problems of infant hygiene and infant feeding, standards of training for infant welfare nursing, continuation schools of home-making, the relation of vital statistics to plan for social betterment and the relation of the plans for the conservation of infant life to the general ideals of conservation.

## The Cell Count in Spinal Fluid in Syphilitic Disease of the Central Nervous System

By O. P. BIGELOW, A. B., M. D., Cleveland

The central nervous system is so delicately constructed and so thoroughly protected that a direct examination for diagnostic purposes is very seldom to be thought of. But we have, in lumbar puncture, a means of determining with considerable accuracy the condition of these structures. We are able to withdraw and examine a portion of the fluid which bathes them; and it has been found that this fluid undergoes various changes following an inflammatory or irritative process of the covering membranes.

The change most frequently encountered is an increase in the number of cells floating in the fluid, due to actual pus formation in some cases and, apparently, to a desquamation of cells from the diseased surface in others. This paper will be limited to a discussion of this one abnormality, an increased cell count, with special reference to its peculiarities in cerebrospinal lues, paresis and tabes.

A pleocytosis is very constantly present in these diseases, even more so than is the Wassermann reaction; and it has the added value, as compared with that reaction, of localizing the disease definitely in the central nervous system. My results are 98.2 per cent positive for paresis, 100 per cent positive for tabes, and 86.3 per cent for c. sp. lues.

It is true that we occasionally find a slightly increased cell count in some other diseases. The following list of cases in which I have had an opportunity to make a count shows to about what extent this may be expected.

TABLE I

Disease	No. of lumbar punctures	Three highest counts
Alcoholism .....	8.	3-4-8.
Amentia .....	4.	1-1-2.
Brain Tumor .....	6.	3-4-26.
Arteriosclerotic Insanity ..	24.	4-4-8.
Dementia Praecox .....	129.	5-6-7.
Dementia Senilis .....	27.	4-4.5-8.
Epilepsy .....	44.	4-4-6.
Herpes Zoster .....	3.	10-12-20.
Imbecility .....	3.	0.5-1-3.
Manic-depressive Insanity	12.	2-2-4.5.
Multiple Sclerosis .....	3.	4-7.5-11.
Neuritis .....	10.	6-6-12.
Normal (Mentally) .....	3.	1-2-2.
Paraplegia (traumatic or cause unknown) .....	8.	2-2-3.
Perversion .....	5.	0.5-1-2.
Presenile Insanity .....	4.	1-1-2.
Uremia .....	4.	0.5-1-1.5.
<b>Total .....</b>	<b>297.</b>	



Thus, in two hundred and ninety-seven cases a count of over seven cells per c. m. m. was found in ten, i. e., in about three and one-third per cent. But herpes zoster, the disease which seems to offer most constant opportunity for confusion, is easy of diagnosis clinically; and clinical signs would determine the diagnosis too, in several others, of these cases.

Acute meningitis from other causes than syphilitic disease usually results in so great an exudation of cells, mostly leukocytes, into the spinal fluid that there is little chance for error, even aside from clinical signs. Of ten cases which I have seen, only two showed a count of less than five hundred cells per c. m. m. One of these presented at autopsy a tuberculoma which involved a small area of meninges; and clinical signs in the other case pointed to the same condition. There was no question of syphilitic disease in either of them.

There is a well defined difference, too, between the three diseases under discussion as regards the average degree of pleocytosis. There is, of course, a considerable range between the lowest and the highest possible counts in any one of them, but a cell count which approximates one of the averages given below has corroborative value at least.

TABLE II.

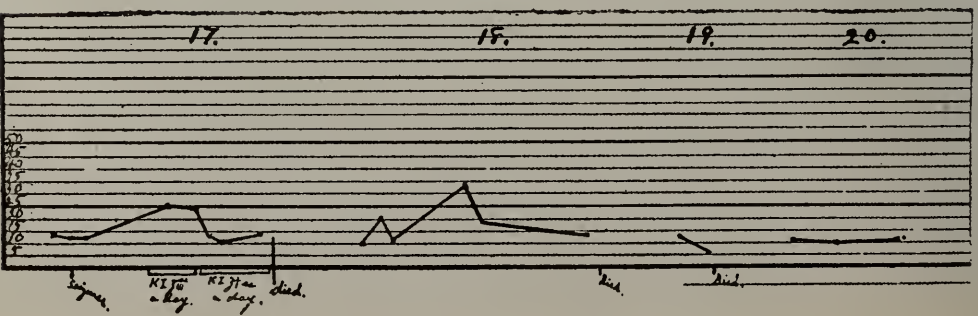
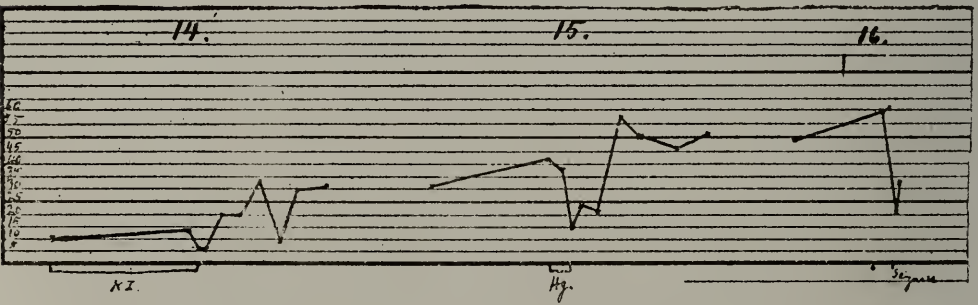
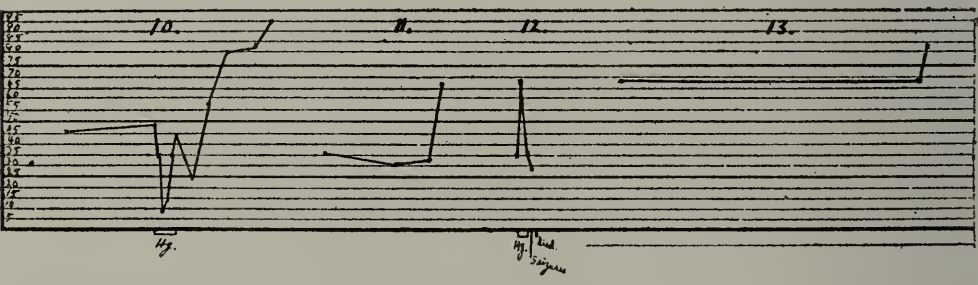
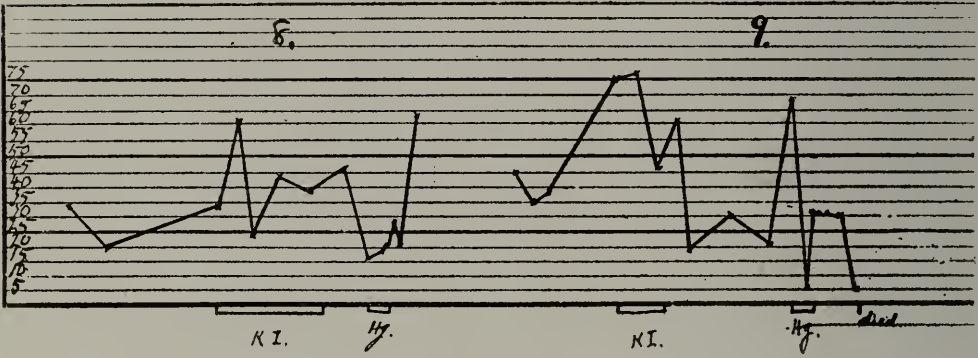
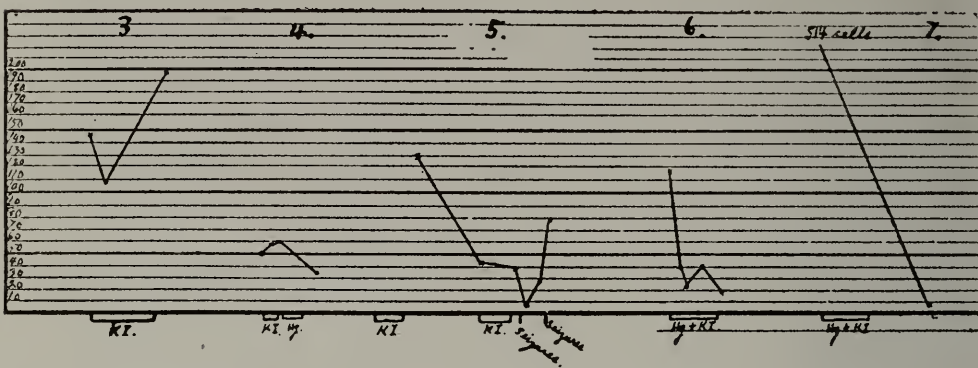
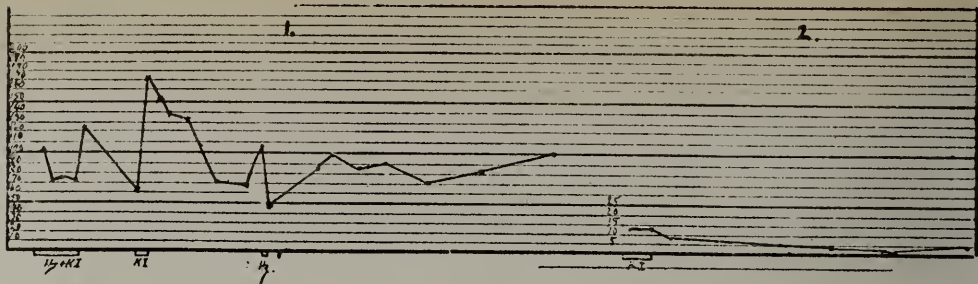
Disease	No. of lumbar punctures	Average cell count
Paresis .....	164.	35.
Tabes .....	16.	52.
Cerebrospinal Lues .....	80.	83.

Paresis usually gives a count ranging between eight and forty cells per c. m. m., tabes, one between forty and one hundred, cerebrospinal lues, between fifty and five hundred. The last named disease is the most variable, for in some mild forms and in the last stages the count may sink even within normal limits.

There follows the record of a number of cases of paresis and cerebrospinal lues in each of which several lumbar punctures were performed. I have not had an opportunity to follow cases of tabes so thoroughly. Horizontal spaces represent months; in the vertical spaces are shown the number of cells per c. m. m. Dots represent lumbar punctures; brackets below show time and duration of treatment and time of convulsive seizures is also indicated.

The first seven cases are of cerebrospinal lues, the rest, of paresis.

TABLE III.



One of the things that we notice in reviewing this group of cases is the fact that most of them have a rather constant degree of pleocytosis, low, high, or medium, from which they vary little or to which they tend to return.

The greatest fluctuations occur in cerebrospinal lues; in some of these cases there is a steady decline in number of cells as time goes on seemingly irrespective of treatment.

The general physical and mental condition has no relation, as far as I could observe, to this habitual height of cell count in cases of paresis. In cerebrospinal lues the count is highest at the onset when the patient is acutely ill.

As to the degree of pleocytosis at different stages of the disease, the following table shows that the average count is higher in the earlier and later stages of paresis than in the intermediate period; although individual cases vary greatly. In cerebrospinal lues there is usually a progressive decrease after the acute onset down to an "habitual" level or even to normal. This corresponds to the clinical course of the two affections; for paresis is a progressive, invariably fatal disease, while the other is an acute illness the lesions of which tend to heal by scar formation.

TABLE IV.

Duration of disease in cases of paresis in which this is known		
	No. of Cases	Average cell count
Less than six months.....	18.	40 per c. m. m.
Six months to 1 year.....	8.	38 per c. m. m.
One year to 2 years.....	14.	32 per c. m. m.
Two years to 3 years.....	18.	40 per c. m. m.
Over three years.....	11.	42 per c. m. m.

Duration of disease in Cerebrospinal Lues		
	No. of Cases	Average cell count
Less than 6 months.....	16.	167.
Six months to 1 year.....	6.	51.
Over two years.....	5.	49.

Treatment with mercury and iodide seems to have some influence in both diseases. Following iodides, which were given in doses of 90 grains a day or over, I found an increased cell count in three out of four cases of paresis and in three out of five cases of cerebrospinal lues. This is probably due to the well known action of iodides in breaking down or dissolving tissue. A greater number of cells would thus be liberated from the surface of the diseased meninges and float free in the cerebrospinal fluid. As shown in table III, the effect is only temporary.

Mercury, which was given intramuscularly, was followed by a decreased cell count in three out of five cases of paresis and in two cases of cerebrospinal lues in which it was given alone. It seems therefore to arrest the desquamation or exudation of cells into the fluid in many cases. The results, as in the case of iodides, were only temporary. In only two cases of paresis and three of lues did the cell count reach normal at any time.

Convulsive seizures are usually accompanied by a decrease from the "habitual" cell count, as may be seen in table III.

Approaching death is often accompanied by a fall in the cell count even to normal limits. I have seen this occur in three cases.

After death there has been a rapid and very marked rise in the cell count in eight cases of paresis, tabes and cerebrospinal lues in which I have had an opportunity to perform lumbar puncture post mortem. They are tabulated below.

TABLE V.

Disease	Last 3 cell counts during life	Cell count
1 Paresis .....	13-11-14.	15 minutes. P. M. -104.
2 Paresis .....	18-9-26.	4 hours. P. M. 410.
3 Paresis .....	49-60-33.	30 minutes. P. M. 226.
4 Paresis .....	10-22-11.	45 minutes. P. M. 1992.
5 Paresis .....	36.	20 minutes. P. M. 139.
6 Paresis .....	12-10-11.	10 minutes. P. M. 76.
		1 hour. P. M. 270.
7 Tabes .....	.87.	1 hour. P. M. 760.
6 C—SP. Lues ....	7-28-78.	3 hours. P. M. 442.

While lumbar puncture is usually a harmless procedure in any case, it is especially well born in paresis, tabes and cerebrospinal lues. In the first two there is usually anesthesia, so that the operation itself causes no pain; and in none of these cases have I observed the headache and nausea which sometimes follow the operation in other patients.

**Gold Medals.**—Fairchild Brothers and Foster, New York, have been awarded a gold medal for Physiological Pharmaceutical Preparations at the exhibit in connection with the International Conference of Medicine held in London in August.

Messrs. Rebman, publishers of New York City, had awarded to them the gold medal for the best medical publications at the same Medical Congress.

**Baby-Saving Campaign.**—The Civic Federation of Chicago, in the hope of reducing the infant mortality rate in the city, has commenced a campaign of education by means of posters, urging mothers in the crowded wards of the city to "Keep Your Baby Well," and giving the addresses of the nearest Infant Welfare Society stations and the Elizabeth McCormick Baby Association at which free advice and care is given to all mothers.

## Review of Dermatology and Syphilis

By H. N. COLE, M. D.

"*Etiology and Prophylaxis of Leprosy.*" Marchoux, M. E. of the Pasteur Institute. *Bull. de la Soc. Fran. de Derm. et de Syph.* May, 1913. No. 5, p. 247.

The French Academy of Medicine places *leprosy* among the contagious diseases which it is not obligatory to report. In discussing this Marchoux mentions several interesting cases of transmission and shows why *lepra* should be placed among the reportable diseases. For more than fifty years cases of leprosy have been kept in the Saint Louis Hospital at Paris, and inasmuch as no known case has been known to result therefrom, physicians are liable to look too lightly on the disease. Some 60 persons have allowed the organisms of Hansen to be placed under their skins and apparently none of them have suffered. Now what does this mean? Is it impossible to transmit the disease even from man to man? In answer to this question Marchoux calls attention to a disease of rats discovered by Stefansky in 1903. Like *lepra* it has a long incubation period and slow evolution. It reveals itself by cutaneous and motor manifestations. Its pathology is much like that of *lepra*, the nerves are involved, and finally the entire body is infiltrated with the acid fast organisms. As in *lepra*, death usually results from some intercurrent affection. To sum up, the following conclusions can be drawn in regard to this interesting disease: It is easily inoculable from rat to rat by scarification or even by placing the germs over a freshly epilated area of the skin. Insects are not the transmitters of the disease for the acid fast organisms found in them differ from the one of the rat. The bacillus does not grow on media as drying destroys it and it is easily killed by heat at 60 degrees Centigrade for fifteen minutes. Immediate contact seems to constitute the only mode of contagion, especially sexual congress where it is not necessary to have even an abrasion to transmit the organism. The rat leprosy clinically recognizable with all the skin affections, motor symptoms, etc., is relatively rare as only 0.6 per cent of the Paris rats are affected, while 5 per cent of them have this disease, though in a dormant form, only to be diagnosed by the microscope. It is seated in the superficial glands, or in a set of glands confluent to the lymphatics draining the point of entry of the virus. This form of rat leprosy may remain dormant for a long time and even heal itself spontaneously. Abundance of good

food and hygienic surroundings assist in this, while, on the contrary, poor food, secondary infections, et cetera, diminish the resistance of the organism and favor the spread of the disease.

There are, as one can see, many points of resemblance between this affection and human lepra, and Marchoux feels that there are many cases of leprosy, like its cousin in the rat, that never reveal themselves by clinical signs; though being carriers of the disease. Leprosy is, after all, in some cases apparently very easily transmitted, and Marchoux reports several cases. Sexual congress is to his mind one of the easiest methods. Now that we have the Wassermann reaction we are able to diagnose even more of them, for this disease gives a positive Wassermann in a large proportion of the cases. Jeanselme says a positive Wassermann may serve to reveal a dormant case of lepra, especially if antisyphilitic treatment is of no avail. Photinos and Michaelides report a woman who was married to two lepers in succession and consented to be kept in an asylum with each of them. She has good health, apparently, but her Wasserman reaction is strongly positive. Marchoux adds a personal observation of a young girl married to a creole. She now has a macular leprosy, her child has a macular lesion and a change in sensation on his left arm. The father seems to be perfectly well, but has a strongly positive Wassermann.

Leboeuf has traced five of the cases reported by Andre as "lepra dormans." Two have since become clinical cases, two are dead, having never showed signs of the disease, and the last one is still living and perfectly well. How many more like cases are there?

One is justified in making the following conclusions. The resistance of the human organism to the lepra bacillus is good and the cellular reaction causes a large number of the germs to be destroyed. A good hygienic life with plenty of nourishment assists in this very materially; while poor food, intercurrent infections, et cetera, predisposes to marked inroads of the disease. But, nevertheless, is it not true, that these dormant cases may be a danger to the community and that we should put our lepers in asylums? Insects have been mentioned as among the etiological factors in regard to lepra but, after all, immediate contact is the most to be feared, though perhaps the fly is able to transmit the disease. The laws in France should be changed, while the lepers are still few in number, for otherwise, it may be soon too late.

*“Further Researches on the Pathogenesis of Mercurial Colitis and Stomatitis.”* Almkvist, J. *Dermatologische Zeitschrift*, Nov., Dec., 1912. Vol. 19, 11, 12. The views in regard to the causation of mercurial stomatitis and colitis are many and Almkvist has devoted a large amount of study and experimentation to this subject in the past few years. As a result of his researches he has come to the conclusion that the changes found in the mouth and large intestine are dependent on local conditions. The first alteration is a local putrefaction, where there has not been the proper cleanliness, from food decay, et cetera. An erosion of the mucosa then takes place and in the course of these processes hydrogen sulfid is formed in appreciable amounts. This latter coming into contact with the mercury in the blood then forms an insoluble precipitate in the endothelial linings of the vessels as a mercurial sulfid. This seriously interferes with the function of the vessels and further necrosis and hemorrhage takes place; secondary bacterial invasion assisting in the process.

To prove his contentions, Almkvist injected different animals, notably rabbits, intravenously with solutions of hydrogen sulfid and then investigated the powers of precipitation of different metals—lead, copper, bismuth and mercury. Histo-chemical examinations showed that there were no precipitations of the copper and lead salts, while with the bismuth and mercury the contrary was true. However, in bismuth poisoning the degenerative changes are not so marked as those of mercury, as the bismuth sulfid is apparently not very toxic. With the mercury, on the contrary, the precipitation of mercury sulfid produces its marked and rapid pathologic change, in a case of intoxication, by its local toxic action.

*Progress in Syphilis.* Astounding as have been the advances in our knowledge of syphilis in the past decade yet it is apparent that we are still far from retrograding if we examine the researches of some of the workers in the last few months. For a time our interest was centered on treatment but now it is once more being brought back to the findings of the microscope and test-tube. Uhlenhuth and Mulzer<sup>1</sup>, among others, have been investigating the spirochaeta holding properties of the fluids of the human body. Their method has been to inject the fluids into the testicles of rabbits;

<sup>1</sup>“Inoculations of blood and other fluids from syphilitic human beings into the testicles of rabbits.” Uhlenhuth & Mulzer. *Zentralb. f. Bakt.* Vol. 64, p. 165.

a chancre being formed as we know if any treponemata are present. The results of their researches may be summarized as follows. The blood of leutics in the primary stage, both with a positive Wassermann and with a negative Wassermann but general glandular enlargement, caused, in the two cases tried, the appearance of primaries in the rabbits' testes. The blood of primary cases with as yet no general symptoms was also in some cases infectious even at a time when no glandular reaction was as yet present. This upholds the old contention of Metchnikoff that even a few hours after infection it was possible that the spirochaeta were circulating through the body. In like manner and as one would expect, the blood of secondary cases gave positive results and that taken from patients with latent syphilis was also shown in some cases to be infectious. Thus the blood of a symptomless mother with a positive Wassermann, shortly after the birth of a leutic infant, gave positive findings after injection. In tertiary lues the blood was not so infectious but, nevertheless, it was possible even in this stage to infect rabbits. The semen of a fresh leutic was found to be especially virulent while the milk and spinal fluid from leutics and so-called meta-syphilitics has as yet given them only negative results.

Graves<sup>2</sup> of St. Louis has been working along the same line with the blood of general paretics, and his findings have been not only astounding, but even epoch making, for in 200 cases he has been able five times to produce a chancre in the rabbits testicle by injections of blood from these patients. Thus our cases of general paresis are after all nothing but plain ordinary syphilis with the lesions placed in the highly developed tissues of the brain. In other words, given the proper conditions and a general paretic is as able to transmit lues as any syphilitic in the secondary stage. This noteworthy work of Graves has been amplified and confirmed by the histological studies of Noguchi<sup>3</sup>, and later of Levaditi<sup>4</sup>. The former has examined the brains of 200 paretics and in 48 of them has found *treponema pallida*. The ages of the patients varied from 29 to 75 and in one of them the patient had had his illness for six years. The organisms

<sup>2</sup> Graves, Wm. W. On the growth of Spirochaetes in rabbits inoculated with the blood of general paretics. Weekly Bulletin, St. Louis Med. Soc. 1913, Vol. VII, p. 346.

<sup>3</sup> Noguchi, H. Journal Cutaneous Diseases, Aug., 1913, p. 543.

<sup>4</sup> Levaditi, Marie, Bankowski. Bull. de la Soc. Fran. de Derm. et de Syph. May, 1913, No. 5, p. 257.



were all found by using the original Levaditi stain or a slight modification devised by Noguchi. In six fresh brains he was able to find the organisms once, by means of the dark field illuminator. With twelve cases of tabes it was more difficult to get results as the search was hampered by the presence of neuoglia fibres and cross sections of nerves. However, by cutting the tissues longitudinally the difficulty was lessened and the spirochaeta were found in the posterior columns of the cord of one of the cases. As to the distribution of the organisms his research was confined mostly to the motor regions and the treponemata were most frequent in the cortical layers of the nerve fibre zone. By counterstaining, pyramidal cells were found surrounded by one or more spirochaeta and in some instances a part of a pallida could be seen inserted into the cytoplasm of the cell. Some were also found along the axis cylinders, in the perinuclear spaces, and certain irregular precipitates, probably in the nature of exudates, were noted here. The nerve cells infested showed degenerative lesions, even up to the point of disappearance of the nuclei as well as of the processes. The pallida were very rarely found in the vicinity of the blood vessels and almost never in the vessel walls.

Levaditi's, Marie's and Bankowski's<sup>4</sup> findings were even more remarkable, for from the fresh brains of eight general paralytics, using the ultra-microscope and the method of Fontana-Tribondeau, the authors were able to find the treponema pallida each time. The seat of the organisms was variable but in the cortical portion of the Rolandic area they were the most in evidence.

These same authors have lately published an amplification<sup>5</sup> of their first report. In nine cases of general paresis with lethal exitus from cerebral hemorrhage they succeeded in finding the organisms in all but one case. It seemed in these paretics as though there was some relation between the presence of cerebral hemorrhage and the treponemata and in three of the cases the organisms were as numerous as in a primary lesion. Why this type of syphilitic infection should be more resistant to mercury and arsenic than any other we are yet unable to entirely comprehend. Perhaps as Ehrlich and others have suggested the organisms gradually acquire an immunity to *hydrargyrum* and *salvarsan*. At any rate it still remains for some one to devise

<sup>5</sup>Levaditi, C., Marie, A., and Bankowski, J. 'The Treponemata in the brain of general paretics. *Annal. de l'Institut Pasteur*, 1913, July 7.

a new drug or method of attacking these foci in a manner that will give us better results than we have as yet been able to achieve, for it must be admitted that thus far treatment has been far from as promising as in the other types of lues. Apparently the best way out of the difficulty is to treat our early cases so thoroughly that they will never reach this stage.

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**“Scoring” The Milk Seller.**—We recently discussed some of the factors which demand consideration in the present attempts to improve the quality of the milk supply to cities, and offered some comment on the limitations which affect the producer. A still different aspect of the subject has been raised by the investigator in charge of the market-milk investigations of the Bureau of Animal Industry. He remarks that it has been a too prevalent custom in the past to lay all of the blame for dirty milk on the shoulders of the milk producer. While this may be an easy and convenient way, he adds, to shift the burden of responsibility from city to country, it is apt not only to hurt the dairy industry unfairly, but to close the eyes of reformers and health authorities to questions that lie nearer home. Milk inspection, to be complete must apply to the places and modes of delivery quite as well as to the farm and its environment.

Precisely as systems of “scoring” dairy farms have been planned and are actually in operation as a basis for selling graded milk, so it is now proposed to devise a scheme of inspection and method of control for the stores and distributing plants concerned in the milk industry. There is the widest variation in the practices now prevalent in our American cities. In some there is rigorous control exercised by efficient health authorities, under whom a “license” or a “permit” carries with it an assurance of reliable supervision. In other places there are dead-letter regulations or no laws whatever. There are communities in which the sale of milk in bulk is forbidden; elsewhere it is freely tolerated.

The conditions essential for the preservation and delivery of milk in a sanitary condition are now well known in a professional way. It is perhaps not too early, therefore, to bring pressure to bear at every point at which a violation of the necessary provisions spells failure. To attempt to “standardize” stores handling milk and to rate them in the public eye along the lines which are followed by the inspectors who safe-succeeds in securing co-operation at every step, first by inculcation and guard the sources of supply of cities like New York, may be premature in unnecessary hardships and friction. The fortunate community is one that 1913. High ideals are worth striving for. It is not difficult to educate an interested public by a system of propaganda. Drastic ordinances cause then by liberal enforcement of reasonable measures.—*J. A. M. A.*

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**Curtailing the Death List.**—The Journal of the American Medical Association has made a detailed compilation of Fourth of July accidents which, though rather late, throws an interesting light on the gradual spread of the “sane” idea. In Cleveland one is likely to forget that the old bloody holiday is still in vogue in many places.

Thirty-two lives were lost this year in Fourth celebrations. Ten years ago when the Journal began its investigation the number killed was 406. That tells the story of eleven years. But the improvement, though constant, has been particularly marked in the last three years.

Thirty-one large cities have clean records this year so far as Fourth fatalities are concerned. As the Journal suggests, “If thirty-one can have a clean record all the others can do as well. Experience has shown that restrictive ordinances are practically impossible of enforcement. Prohibitive ordinances will alone solve the problem.”

## The American Physicians' Travel Study Tour

By V. C. ROWLAND, M. D., Cleveland

With the approval of the president of the American Physicians' Travel Study Tour and at the request of THE JOURNAL, the following account of that eventful trip is published. It is also desirable that the tour be more generally known as it is planned to be an annual affair or at least an event to be looked forward to at intervals. It is in keeping with the custom of exchange of professors and represents a tendency, which will probably grow in the future, as international relations in scientific and educational circles become more intimate. From the nature of the tour, it is not adapted to any intensive study, but rather to the study of conditions and methods in a comparative way. The tour was originally suggested by the German Physicians' American Tour and was fostered by Doctors Breitenfeld, DeGarmo and Kovacs of New York City. It was announced in *The Journal of the American Medical Association*, and in some of the state journals, but no propaganda was carried on in any locality. Consequently the party was composed of physicians from all parts of the country from New York to San Francisco and from Cleveland to New Orleans, and curiously enough, quite uniformly distributed over intermediate sections. Although entirely unselected, the members of the party were in large measure men with hospital or medical college associations. They were in no official way representative of the American Medical Association but geographically and from the standpoint of the various phases of professional work, it would have been difficult to have formed a better miniature of the American medical profession. One of the valuable features especially during the sea voyage, was the exchange of ideas with physicians in all stages of their careers and in the most varied situations as regards practice and teaching and medical activities wherever applied. Similarly, on the European itinerary, comparative observations both as to home conditions and in the different countries were brought out by the diversified experience of the different members of the party. The entertainment abroad was entirely planned in advance and in Vienna and Germany especially, where the greater part of the time was spent, a reception committee awaited the arrival of the train in the various cities, a speech of welcome was made and printed programs given out for the entire visit. The local medical societies certainly honored the party as a representation of the

American profession. Many of the members of the German American Tour were on the local committees and seemed very anxious to reciprocate in entertainment and to show the cordial relations existing between the professions of the two countries. This in fact, was the chief theme of the numerous after dinner speeches at the different banquets and receptions.

The party consisted of 68 people including about 18 members of physicians' families and friends. They left New York on the S. S. Bremen on July 3, 1913. During the voyage a series of papers, talks with stereopticon views, a concert and a mock operation served to keep up interest. Some of the papers were purely scientific, others of general interest. Doctor Fred Albee of New York spoke on bone grafting and demonstrated his original instruments for the spinal graft in Pott's Disease. Doctor Louis Seaman of New York, who has traveled extensively as a student of military sanitation, gave an illustrated lecture on sleeping sickness as he saw it first hand in Africa. Doctor Foss of Philadelphia gave a similar talk on medical experiences in the most northern town in Alaska. Doctor Punton of Kansas City gave an able paper on medical idealism. A very unique style of address was furnished by Major Page of the U. S. Army, on biological principles as applied in the national dealings with primitive races. He had had a long experience in the Philippines. The scientific papers were freely discussed. The leisure of sea travel seemed to encourage free discussion.

On July 12, the party disembarked at Cherbourg and went by special train to Paris. On the 14th of July, the French 4th of July, which was duly celebrated to the exclusion of everything medical, the party was informally received at the American Embassy by Hon. and Mrs. Myron T. Herrick. The well known institutions were then visited among them the Salpêtrière, the Pasteur Institute, Hôpital Cochin, including Widal's laboratories, Hôpital Broca and Pozzi's Clinic, Tarnier and Baudelocque's Clinics and the newest and best in the way of French hospital construction, Hôpital de la Pitié—a magnificent institution with 1000 beds and equipped with all modern accessories such as electro-cardiographic apparatus, X-ray in all its forms, et cetera. It was built at a cost of 11,000,000 francs and endowed by the state.

The first stop in Germany was at Munich, a delightful medical center where the German hospitality was exemplified at its

best. No effort was spared to make the American party entirely and literally at home. A well planned morning of clinics was most enjoyable. Professor Mueller gave a medical clinic in English and charmed every one with his thoroughness as a teacher. Doederlein performed a vaginal Caesarian section. Kraepelin met several neurologists in the party. The Muenchener Poloklinik is certainly the acme of dispensary construction and organization. The type of the German Hospital is seen in the Neues Krankenhaus in Schwabing, a general hospital of 1100 beds built at a cost of 18,000,000 marks, with the most elaborate equipment not only of scientific apparatus but also for hydrotherapy, mechanotherapy, electrotherapy, et cetera—out of all proportion to anything seen in England or America. The attitude towards the things which are frequently regarded as of questionable efficiency, seems to be, that the hospital is the place to try them out and determine their value.

In Vienna a similar program was carried out, a surgical clinic by Professor von Eiselberg, a dermatological clinic by Professor Riehl, particularly with reference to his extensive use of radium. Clinics were given by Wertheim, von Marburg, von Pirquet and others, the members of the party, selecting the things of most interest to them. Here, as in Munich, Dresden, Berlin and elsewhere, the academy of medicine entertained the American party at one of the parks. The stars and stripes decorated everything. American patriotic music was heard from several bands and orchestras. The demonstration of welcome was far beyond expectations and convinced everyone that such exchange of hospitality necessarily has a great influence in breaking down international barriers in the profession and in enhancing friendly relations between the nations. Professor Lorenz was especially enthusiastic and referred to his American tour as the most enjoyable period in his career.

Similar accounts might be made of the visits in Dresden, Berlin, Frankfort, and other cities en route. Particular mention should be made, however, of the cordial reception of Professor Ehrlich in his laboratories in Frankfort, and of the great interest he took in showing the details of the work he was carrying on. Also of the great honor shown the party in Berlin by the Surgeon General of the German Army in personally conducting a group through the Kaiser Wilhelm Academie. Wassermann addressed the party in Marienbad and Berlin and was seen again in London. It should be stated also that a special program for the entertain-

ment of the ladies was arranged in the various cities, sometimes by wives of the local physicians. Art galleries and various things of general interest were visited while the physicians were attending clinics.

One other phase of German medical activity was seen quite fully, namely, the various spas, among them Marienbad, Carlsbad, Nauheim and Wiesbaden. Here again the entertainment was most extraordinary in character; the most extravagant banquets were served amidst a profusion of stars and stripes and felicitations ran high. In fact some of the hosts did not hesitate to say that American patients, even the most fastidious, but opulent, would not be unwelcome. A thing of quite general comment among the American physicians was the amount of professional support given these health resorts. In America, they are considered to meet more of a popular than a professional demand. In Europe they are patronized personally, by some of the leaders of the profession.

A trip down the Rhine, a stop at Cologne and Duesseldorf and later at Brussels and Amsterdam, concluded the continental tour.

The last attraction and the especial occasion of the Travel Study Tour of 1913, was the International Medical Congress in London. A number of people seen at various points on the tour were again met here. In fact the German and American parties were at the same hotel during the entire convention. The party then disbanded, the individual members returning at their own pleasure, some returning to points, where they had found particular attractions on the tour. Those who passed through Glasgow had opportunity to see some cases of typhus fever. At the final meeting, it was decided to effect a permanent organization, the above named officers being retained. A complete account of the tour with photographs will be published for the benefit of the members of the party.

For a first European trip especially, in order to gain a comparative idea of medical conditions or to make an intelligent selection for a more prolonged stay later, and at the same time to have an excellent opportunity to form friendships with a number of American physicians from different sections of the country, the party tour can be highly recommended. Necessarily it shares some of the disadvantages of that form of travel, but with the one common professional interest and the foreign recognition, the advantages more than compensate.

# The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and  
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

THE OFFICIAL ORGAN OF THE ACADEMY OF MEDICINE OF CLEVELAND

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Entered March 7, 1902, as Second-Class Matter, Post-Office at Cleveland, Ohio, under Act of Congress of March 3, 1879.

Organized January 20, 1902

Capital Stock \$6,000

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## EDITORIAL

### "Safe First"

In connection with the recent demand for safety in traffic movements, controls of railroads, et cetera, would it be a miss to allow our attention once more to be called to another pressing danger hanging eternally over our heads? We refer to *Syphilis* written with a big S. At the recent International Medical Congress in London, *Syphilis and Its Control* was one of the principal topics, and here at home we have been lately getting a reminder in a form more palatable to the public eye—from the stage. Syphilis has been, is now and always will be, one of the greatest scourges

of humanity, and steps must be taken to educate the public to its causation, course and results if we are ever to have hope of getting rid of this monster of civilization. A recent writer in Paris placed the mortality from syphilis in that city in the year 1910, as second highest—being surpassed by tuberculosis only. This may seem a little high, but Fournier reckoned that every sixth man in Paris was a luetic, while Prof. Blascho of Berlin is quoted as saying that a young man of 23, in Berlin, who has reached that age without being married has had gonorrhoea once, and if he remains a celibate until the age of 30 he has had another Neisser infection, and every fourth one has become the host of the spirochaete. Here in America, though perhaps not quite so frequent as in Europe, yet we find syphilis on every side of us and in every form and we, as a nation, must waken up to this peril, lay our modesty aside, call gonorrhoea, gonorrhoea, and syphilis, syphilis, and strive to wipe out this plague. But how, one may ask, can we hope to make any head against so great an evil?

The first step must begin with the profession, itself, for if we, ourselves, have no respect and are not thoroughly grounded in the essentials of the disease, then what of a lay person. The physician's education should have been such, that he is well acquainted with the earlier symptoms of the disease and with the proper treatment for the same. The luetic unrecognized in his earlier stages stands little show of a cure later, and often ends up in an asylum—to say nothing of his wife and children condemned to a life of sickness and sorrow. The day where the doctor passed out several hundred protoiodid tablets to be taken now and then at leisure must be relegated to the past. Now that we know the results of syphilis untreated, we must use more vigorous procedures, treat our patients as we would like ourselves to be treated and teach them the results of lax measures.

This brings us to our second point, the *education of the public* and a campaign of publicity. The children should be taught in the schools and homes; the parents by lectures, papers and from the stage as in the recent successful plays of Brieux. Moreover the public houses should be regulated and their inmates examined weekly, for like the poor, we are bound to have them with us, whether or no, and weekly supervision will at least raise the standard and remove some of the more virulent cases.

As to the patients, themselves, they should be carefully in-



structed as to their duties and in regard to their danger to others. To be sure there is a certain class of syphilitics who would exercise no care and discretion no matter how often they were warned, and for such the strong arm of the law should intervene. We quarantine smallpox, scarlatina, measles, etc., even having impetigo among our antiquated list of reportable diseases while the secondary luetic with a mouth lined with mucous patches is allowed to roam the streets at will.

Let us take the veil away from our eyes and look the question squarely in the face instead of supinely passing it on to the next generation, and in the meantime allowing our own to be devoured. Builders are daily endeavoring to make our ships stronger and safer, the railroads and manufactories are constantly adding to their safety devices, and the interstate commerce commission, in the interest of public safety, is even considering a compulsory yearly physical examination of all employees on common carriers. Yet there is a disease, extending from one end of the world to the other, taking toll much higher than that of all the ship and railroad disasters combined, a disease which is prohibited entry to most hospitals and which, like the lepers of old, is looked on as something unclean and to be shunned by all not afflicted; instead of being intelligently treated and handled. "Safe first" is the motto of the day and is it not high time that it should be thoughtfully considered in connection with this disease?

H. N. C.

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### "Damaged Goods"

For the purpose of promoting in Cleveland an intelligent public as well as professional interest in the production of the play "Damaged Goods," the Cleveland Academy of Medicine, with other organizations, at a meeting held in the Mayor's office, decided that the officers of the various organizations represented should send notices to their membership urging them to attend this play. Following such decision, notices were sent to each member of the Academy, with what resulting attendance we are unable to say. Every man and woman who did not see the play, should certainly read it, as it marks a genuine epoch in popular education, presenting as it does the most serious health and moral problem of the day.

The name of this powerful sociological drama, "Damaged

Goods," is appropriate and significant. The author, Eugene Brieux, is a French iconoclast, so-called, who protests against the modern tragedy of *silence*. The importance of this great stage sermon was realized by physicians and sociologists and through their efforts the public is now being benefited by its production, for no stage manager dared produce so fearless and effective a presentation of the real truth, a dramatic interpretation of the crime, whose ravages are calling for a larger toll than many diseases supposed to be more deadly.

Richard Bennet, the producer, has had the courage to present the play with the aid of his co-workers, at first in the face of the most savage criticism of the ignorant and of those lacking the courage or desire to witness the presentation of truths so hideous in the possibilities of evil to the innocent as well as to the guilty.

*Harper's Weekly* says editorially, of this play: "It is a very excellent thing that the American people are coming to recognize this evil, talk about it, think about it and study it, in all ways. It is one of the saddest, most destructive, most unjust diseases of civilization, and it will never be lessened by the Puritanic device of *Silence*."

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### Paul Ehrlich on the New Chemistry

*The Literary Digest* gives an interesting summing up, for the lay man of *Paul Ehrlich's justification of the capture of medicine by the new chemistry*. It pre-supposes the growing interest of the lay reader in the science of medicine and so presents in understandable terms, the short résumé of Doctor Ehrlich's recent address in London, which follows:

"More immediately practical than any other scientific development of our time is the subjection of the science of medicine to the principles of chemistry. This is technically described as chemiotherapeutics. The importance of regarding medicine as a branch of chemistry and not as an independent science is manifest when we remember the therapeutic mysteries for a solution of which mankind is now desperately groping. One of these is the problem of cancer. Another has to do with tuberculosis. A third relates to the sclerosis which is such a scourge to the middle-aged. Finally we have the problems growing out of diabetic conditions and the function of the kidneys.

Evidence is not wanting that an element among the scientists

of medicine look with misgivings upon the invasion of their province by specialists from other and, it may be, remote fields. After all, it is urged, medicine is one of the sciences, just as biology is. It should cherish a certain independence lest the faddist find it too much at the mercy of mere theory. This line of reasoning found little favor, however, so far as the new chemistry is concerned, in the presentation of the subject the other day before the International Congress of Medicine in London by Doctor Paul Ehrlich. This most renowned of living specialists in the field of medicine championed chemotherapy as the newest branch of the science of synthetic chemistry. It aims, as *The British Medical Journal* observes, at the cure of disease by rationalized chemical principles founded on the results of exact chemical research. In the past, new remedies for disease have been found—or have been stumbled upon—by empirical methods alone. New medicinal herbs have been brought to light by the traveler or botanist, new chemical compounds have been introduced by the synthetical chemist. Both herbs and drugs have been given to the patients afflicted with various diseases. If the result was happy, it was hailed as a new triumph of the therapeutic art.

That was the old method.

The time has come when the newer method of drugging diseases must be taken into account, observes our British medical contemporary. It is the method advocated by the chemists who have captured medicine, the chemiotherapists, of whom Paul Ehrlich is the head. Their problem is to find the chemical that will kill the parasite causing a disease without killing the patient. Such is the method which gave to the world the greatest therapeutic discovery since vaccination—salvarsan. Nevertheless, the great value of the discovery as well as of the principle itself has been minimized and even denied upon the basis of clinical experience. Now Paul Ehrlich answers his critics in an utterance the translation of which he has authorized and approved:

‘The step from the laboratory to practice—to the bedside—is an extraordinarily difficult and dangerous one, a step which can be taken only with the greatest care. Its difficulty and danger are in the main based upon two factors:

‘1. On the fact that in the case of men there exist so-called idiosyncrasies, forms of supersensitiveness which do not occur in the case of animals. So, for instance, it is known that with a

large number of thoroughly healthy persons the consumption of harmless articles of food, such as strawberries, crabs, et cetera, brings about unpleasant skin eruptions, and almost half the known remedies can incite such phenomena of supersensibility. It will not be a cause of surprise, therefore, that such phenomena may occur in a particularly serious form with the employment of therapeutic agencies which contain such powerfully acting radicals as arsenic and mercury. \* \* \*

2. It has been shown that certain illnesses of a constitutional nature can cause a supersensibility. Thus, for instance, tuberculosis of the suprarenal glands, the so-called Addison's disease, is an illness which, according to the observations of Wechselmann and myself, brings about a severe supersensitiveness of the patients to arsenic compounds. The same applies to the status lymphaticus, which, as has already long been known, must be regarded as a type of the constitutional lack of resistance and supersensitiveness.

Furthermore, the seat and location of the disease may also bring about supersensibility, a supersensibility which is excited by the so-called "local reaction." We are indebted to the master mind of Robert Koch for the first knowledge of this peculiar phenomenon—the well-known focal tuberculin reaction. Exactly similar reactions may, however, occur when the parasites are rapidly dissolved in a focus filled with parasites. Then under the influence of the liberated toxin an irritation of the tissues sets in which is connected with hyperaemia and swelling, and which is known in the case of the "leptic" illnesses as "Järisch-Herxheimer's reaction."

The problem resolves itself thus into what Ehrlich calls "therapeutic tactics." If the tactics be defective, the battle will not be won. Hence the disappointing results of chemotherapy in the hands of those with inadequate experience and equipment. It will often happen that a disease may be stamped out by one or two injections. The parasites in the body of the host will be killed. The swift effect is due partly to prompt action and partly to the freedom of complications of the kind already noted. What are the ultimate causes, however, of so favorable a result?

Typical anti-bodies can be shown to be produced fairly rapidly by the destruction of parasites, and especially of protozoa. Hence, it is quite evident that this adjuvant action of the organism ought to be eminently efficacious. For if the medicine

has destroyed not the whole of the parasites, but only 95 per cent, the remaining 5 per cent may succumb to the influence of the antibodies which are rapidly formed. If this is the case, the *Therapia sterilisans magna* (great sterilizing remedy) is attained. Unfortunately, it has been shown that this salutary process may frequently be minimized by the biological properties of the parasites. For it may happen that a number of the parasites which survive the first injection escape destruction by the serum either wholly or in part, and subsequently change into new varieties which have become serum-proof, and are now known as a "relapsing crop".

In the case of parasites which can form relapsing crops, great difficulties occur in the treatment. The auxiliary forces of the body fail to act. It becomes necessary to destroy the whole of the parasites all at once by means of drugs. Owing to its great power of adaptation, a single germ, surviving, may cause the infection to break out afresh.

Why is it that some of the germs escape infection in this way? Ehrlich replies:

'If an exactly definable quantity of an antiseptic is added to a liquid containing bacteria, a complete disinfection takes place; not a single germ escapes the destructive influence. But such ideal conditions do not obtain in living organisms. Even in disinfecting a room we sometimes find that in certain places, in the so-called 'dead corners' formed by gas or water pipes, and so on, the disinfectant gas does not act sufficiently. In like manner the parasites which have settled in such 'dead corners' of the organism are not reached by the drug.

Practical tests, however, have quickly taught us where such 'dead corners' are to be found in the organism. The principal one is the hollow situated between the spinal cord and the dura, which is filled with a liquid as clear as water and almost entirely free from cells and albumin, the cerebro-spinal fluid. This condition of the cerebro-spinal fluid can only be accounted for by the fact that the cells by which it is secreted are in a high degree impervious to most of the constituents of the organism, albumin, for example, and that they only permit a limited quantity of substances with small molecules to pass through. The drugs with more complex molecules are thus kept back, as albumin is, and cannot get into the cerebro-spinal fluid. Should, therefore, parasites be lodged here, it is impossible for the drug to attack

them. This localization of the parasites is of very special importance in connection with the parasymphilitic diseases, tabes and paralysis.

Summing up, Ehrlich insists that the chemical principle of attacking disease has triumphed, whatever its critics may infer from their own personal experience. He ventures to predict that the next five years will revolutionize the therapeutic practice of mankind because we shall have advances of the highest importance in the field of chemotherapy. One point he concedes. Considering the enormous number of chemical combinations which must be taken into consideration in the struggle with disease, it will always be a caprice of fortune or of intuition that decides which investigator gets into his hands the substances which turn out to be the best for fighting a particular disease, or who it may be that happens upon the basic foundations or substances as weapons in the fight. The chances of finding the true chemical agent will be increased with the increase in the number of investigators. Whereupon the London *Lancet* comments:

"The basis of the new medicine has been the recognition, or at least the partial recognition, alike of the way in which the infective diseases work us harm and of the way in which the unaided body strives to combat the attack. The connection of many infectious maladies with the presence of germs was obvious, but frank allowance had to be made for the fact that not in all such diseases had we succeeded in seeing the actual micro-organism which was at the root of the trouble, while the natural history of the different occurrences had huge gaps. We knew, for example, that in many of these diseases one attack conferred an almost perfect immunity against subsequent attacks, but we knew nothing as to the way in which this immunity was won, and we knew that in nearly every case the use of drugs was able to do little or nothing to cut short the natural course of these often common maladies. \* \* \* Gradually we have come to learn something of the complex method by which the animal body defends itself against the assaults of micro-organisms; and our knowledge, incomplete though it may be, has enabled us to devise methods of aiding the efforts of the body to get rid of the invading germs. Gradually we have learned, and for this knowledge we are in great part indebted to Professor Ehrlich, that both the tissues of the body and the bodies of bacteria and other disease-causing organisms are vulnerable because they possess particular

points of attack. \* \* \* The new science of treatment has done much, and yet those who know most of the matter cannot but feel that we are as yet only at the beginning of the subject. If we have learned so much in the few years in which the matter has been studied, what is the prospect of the future? An almost boundless field of possibilities is opening before us."

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### The Relative Value of Turtle Tuberculin in the Treatment of Tuberculosis

"The treatment of individual diseases with medicines or by methods having a selective curative action has until recent years been limited. With the establishment of the germ theory, and vaccine therapy of certain diseases and the development of information concerning immunity, new methods of specific treatment have been made possible, and are now practiced under the terms of serum and vaccine therapy." This is part of an introductory paragraph of a contribution on the above subject appearing in the *New York Medical Journal* for September 13, 1913, by Doctors J. W. Beattie of New Hampshire, and Edward E. Meyers, New York City.

The authors mention the fact that to Robert Koch belongs the honor of giving to the world, 23 years ago, tuberculin, which was the first great advance in the diagnosis of tuberculosis. Prior to this, the disease was generally recognized as a fatal malady; it was not diagnosed until the disease was advanced and the symptoms marked and then death was required to substantiate the diagnosis. His discovery of the difference in the action of the remedy on the healthy and the tuberculous has proven to be one of the most important discoveries in the modern study of tuberculosis. This discovery gave the profession the *tuberculin test* which has not only made possible an early diagnosis of the presence of tuberculosis, but has also given us a more thorough understanding of the nature of the disease and the essentials of its prevention, as well as led to its specific treatment.

Doctors Beattie and Myers quote von Ruck's reference to the claims of Friedman for the superior value of a living tubercle bacilli in the treatment of tuberculosis, and deprecates the Berlin doctor's spectacular advertising propaganda in the daily press.

*Author's abstract of article published in New York Medical Journal, September 11, 1913.*

Doctor von Ruck said "inasmuch as living tubercle baccilli of the human type have been found in vaccinated cattle both in their flesh and in their milk, as long as three years after their intravenous injection, the objection to the use of the living tubercle baccilli as an antigen, or vaccine for prophylactic purposes in the human subject is well founded. A more formidable objection, is however, the danger of virulence."

They aver, Professor Piorkowski, working along the lines of Professor Koch's discovery, isolated a living antigen in the form of tubercle baccilli recovered from a turtle, as far back as 1903 without in any manner questioning its non virulence. Since that time he has continued his research along this line, and has at last succeeded in perfecting a tuberculin produced from the tubercle baccilli of a deep sea turtle which is non-virulent, and with which, he has successfully experimented with thousands of cases during the past few years at his laboratory in Berlin.

Further quoting Piorkowski, the authors refer to his lecture delivered at the Royal Hospital for the Diseases of the Chest, London, Eng., on April 1st, 1913 (1 British Journal of Tuberculin, July issue, 1913), on discussing his turtle tuberculin, Piorkowski said, "We must differentiate between mammals which produce their offspring alive, and the class to which human beings and oxen belong; and birds—that is, animals which lay eggs; thirdly, reptiles, which possess horny or long integument and also lay eggs. Lizards, crocodiles and turtles belong to that last class. Finally, we have to think of fishes which breathe as long as they are young through gills or by their lungs, and also lay eggs. We thus see very clearly that resemblances are to be found only among lung-breathing animals, and it is for this reason, probably, that the results described are obtained on the injection of tubercle baccilli of similar kind. It became very evident that turtles were especially adapted for our purpose."

In further describing his work along this line, Piorkowski says, "It is very noteworthy that the turtle tubercle bacillus in its further behavior, both culturally and morphologically, displayed an extraordinary resemblance to the human tubercle bacillus. Its growth at 37 degrees F. is remarkably characteristic. The main point about this strain is that it can be used without risk of any manifestations—a circumstance which may be ascribed to the fact that for the last ten years it has been reinoculated afresh daily, and thus has acquired generally an extra-



ordinary innocuousness, becoming both avirulent and atoxic."

The authors in explaining the biological action of Piorkowski's turtle tuberculin quote the latter as follows: "Let us for example, consider atoxic action a little more closely. When a poison enters the body—e. g., tubercle toxin—the first point concerns the existence of receptors which can take up the tubercular poison. If these do not exist, no infection by tubercle baccilli can occur, for the organism possesses congenital immunity towards the action of these baccilli.

The harmless turtle tuberculous toxin combines with the receptors, and the combination is thrown off into the blood as antoxin. New receptors are formed in large quantity, but they are capable of seizing not only the turtle tubercle baccilli, with which they have been hitherto dealing, but also human baccilli, and thus render them harmless. If there is a profuse formation of new receptors, and if the human tubercle baccilli have increased unduly, complete recovery may be affected. The rationale of the cure is along these lines. There is also the additional advantage that turtle tubercle baccilli are innocuous and harmless, and therefore this method is especially well adapted for protecting inoculation.

Recent investigations with turtle tuberculin, in Prof. Piorkowski's laboratories, made by the authors show that tubercle baccilli, when grown in the blood serum of (cold blooded animals) turtles change quite distinctively its bacteriological characteristics, particularly in lessening its virulence and at the same time increasing its power to form antibodies in the blood of tuberculous patients. This turtle tuberculin acts as a direct stimulant to the antibodies of tuberculosis, exerting far greater beneficial effects than human tuberculin, even when the latter is given in the most carefully graded and guarded doses. Furthermore, turtle tuberculin produces only a very slight reaction, besides it possesses far greater immunizing properties than does human tuberculin, with none of the latter's untoward effects.

According to the author's experience, the smallest immunizing dose was one minim of turtle tuberculin administered in 16 minims of normal salt solution. The interval between doses depends upon the recurrence of exacerbation of original symptoms, which is usually about seven days. Very slight reactions such as a rise of temperature to 100 F., and more or less languor for

about 24 hours following the injection are the only reactions which occur even with a maximum dose.

The best site for injection of turtle tuberculin is in the fold of the gluteal region, between the glutens maximus and minimus muscles, which location facilitates absorption.

In closing the authors make the following comparisons:

#### LOCAL REACTION

##### *Human Tuberculin—*

Redness and infiltration begin in area of injection in from four to eight hours.  
No thickening of the skin.  
Area of infiltration usually very tender.  
Abscess sometimes follows injection.  
Adjacent lymph glands swollen.

##### *Human Tuberculin—*

Doses smaller.  
Effect slower.  
Reaction marked.  
Length of treatment prolonged.

##### *Hygienic Treatment—*

Not always feasible.  
Treatment prolonged.  
Necessitating interference with daily avocation.  
Results not always satisfactory.  
Recurrence frequent.

##### *Turtle Tuberculin—*

Redness and infiltration begin in area of injection in twelve hours.  
Slight elevation and thickening of skin.  
Area of infiltration is not tender.  
No abscess follows at point where needle pierces skin.  
Lymph glands not swollen.

##### *Turtle Tuberculin—*

Dosage greater.  
Effect more rapid.  
Reaction slight.  
Length of treatment short.

##### *Turtle Tuberculin Treatment—*

Always feasible.  
Treatment shortened.  
Does not interfere with daily avocation.  
Results very encouraging.  
Recurrence improbable.

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**Report On Diabetic Foods.**—The subject of diabetic foods is one which *The Journal* has discussed at various times in the past in the hope not only of furnishing reliable guidance to those physicians who are interested in the management of diabetes, but also of awakening a much needed reform in the character of the manufactured products sold as diabetic foods. The subject is of vital importance to diabetics and to physicians who want to treat these unfortunates in a scientific manner. A while ago we published a brief preliminary survey of the diabetic foods on sale in the United States. The detailed report, prepared by J. P. Street, chemist of the Connecticut Agricultural Experiment Station, and Lafayette B. Mendel of Yale University, has now appeared. We do not know of any work done on this subject which compares in thoroughness and usefulness with this detailed report from the Connecticut Agricultural Experiment Station. Every physician who is interested in the subject of flours and foods having, or supposed to have, a low carbohydrate content, and certainly every physician who has a diabetic patient, should send for it.—*J. A. M. A.*

## Department of Therapeutics

Conducted by J. B. McGEE, M. D.

**Opium:** George W. Gay in the July number of the *Therapeutic Gazette* considers the use of opium in gangrene. He calls attention to the beneficial effects of opium in certain conditions and lesions of the lower extremities occasionally met with in elderly people. Pain in the feet and especially in the toes of elderly people is suspicious of a more serious affection than "rheumatism." It may be the initial symptom of an indolent ulceration which may terminate in gangrene should the patient be a victim of arteriosclerosis as most of them are. The dangers resulting from impaired nutrition are all the more imminent.

Under these circumstances even trivial lesions, as abrasions, blisters, black spots, etc., demand careful attention. They may mean mischief. The circulation and the nutrition of the parts are seriously impaired, and unless corrected to a certain degree destructive processes may ensue to the permanent harm of the patients. Whatever may be the cause of the conditions under consideration whether it be arteriosclerosis, atheroma, diabetes, thrombosis, embolismets, the indications for treatment are to stimulate the circulation, and to increase the nutrition by supplying the tissues with a larger amount of pure arterial blood.

For the attainment of these objects the most efficient drug he knows is opium. It relieves the pain and quiets restlessness. It is a tonic to the heart and blood-vessels, and supports the nervous system. Used properly it produces a calm even sense of comfort and contentment. It stimulates the circulation and thereby increases nutrition of the extremities to a much greater extent than any other agent with which he is acquainted.

For this class of cases opium is preferable to any of its derivatives as morphin, codein, et cetera, and the deodorized or simple tincture is the most convenient form to employ. The initial doses should be small, and this is an important factor in the method, and merits careful attention. In ordinary cases it is well to begin with two or three drops of the deodorized or simple tincture night and morning, and this amount may be increased by one or two drops every four to six days, until some improvement is evident either in the relief of the pain, or the appearance of the affected parts. The moment that appears the dose is continued or perhaps lessened a little. He has never had to exceed twenty drops in divided doses in twenty-four hours. One of his cases has taken ten drops daily for two years or more with benefit and no harm. It seems to act as a tonic similar to strychnin, except that improvement is much more apparent under the opium than under the former agent. The long continued use of opium calls for judgment and discretion in order to obtain the full benefit of the method. Careless, offhand prescribing has no place in the use of this powerful and seductive drug and it is better to avoid giving it on a prescription as much as possible. Patience, tact and perseverance are indispensable to successful management of these cases, and in his experience no drug when properly used, excels the juice of the "divine poppy" opium.

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**Tetanus:** John Ashhurst in the *American Journal of the Medical Sciences* for July treats of tetanus. Its rational treatment comprises four indications. *The care of the wound*, both as a prophylactic and curative measure, is most important. *The neutralization of the toxin*, by the rational use of antitoxin is indispensable, and he thinks we have demonstrated the inadequacy of the dosage, usually employed for subcutaneous administration, and the necessity of intraneural, intraspinal, and probably also of intravenous injections. The excellent results reported in some quarters from the use of *carbolic acid injections* should be remembered. It is a remedy much more obtainable than antitoxin. The third indication *to depress the functions of the spinal cord*, must not

be met to the exclusion of the foregoing. Those who are enthusiastic in the use of intraspinal injections of magnesium sulphate seem to forget that unless they also employ antitoxin in a rational manner they are doing nothing to aid the body tissues to withstand the onslaught of the disease. Finally, *the care of the patient*, nursing and feeding is the most practical part of the treatment and one without which all the other parts may fail of their effect. In the next case which he meets, the patient will be placed in quiet, with competent nursing facilities. As soon as possible after coming under observation at any time the motor nerves leading from the wounded part will be exposed, as near to the cord as practicable and as much antitoxin as each will contain will be injected toward the spinal cord. An intraspinal injection of at least 3000 units will then be made with the usual technique for spinal anesthesia. If it is possible to prick the cord with the needle, so much the better. Next the wound of entrance of the infection will be widely opened. All foreign bodies, etc., removed, and the wound irrigated with hot peroxide of hydrogen, swabbed out with 3 per cent alcoholic solution iodine and loosely filled with gauze soaked in the same solution, and antitoxin (1500 to 3000 units) injected deeply into the muscular tissues about the wound. Continuous proctolysis will be given and appropriate doses of choral and bromides given by mouth or rectum. During the course of the first day a moderate amount of antitoxin will be administered intravenously, probably 10,000 units will suffice. The intraneural and intraspinal injections of antitoxin will be repeated daily, under chloroform anesthesia, until marked decrease in spasticity occurs. Every twelve hours or less often, a moderate amount of antitoxin will be injected intravenously or even subcutaneously to neutralize the circulating toxins, but the main reliance will be on intraneural and intraspinal injections. Spinal depressants will be administered as long as they are indicated, a comatose state or muscular relaxation being contraindications. The wound will be dressed daily until a healthy granulating surface is obtained. With such treatment, begun within twelve hours of the first appearance of symptoms, they believe the mortality of tetanus should not be over 20 per cent.

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**Vincent's Angina:** Geo. Green, in *Merck's Archives* for August, reports his observations on noma, or cancrum oris (Gangrenous stomatitis) for ten or twelve years, and the successful treatment of oral manifestations of Vincent's angina for nearly three years. At the time he started these observations the mortality in noma was estimated by Holt at 75 per cent, and by others even higher. He did not see the patients until the disease had advanced very far, and little attention was given to the oral disturbance until the ravages of an advancing noma were present. The usual surgical procedure of removal of soft tissue, and dead bone brought recovery in few cases. Constant irrigations of potassium permanganate, and sodium hyposulphite alternately, and careful nursing and feeding were of material assistance. But at best the progress was unsatisfactory, and he refrained from publishing his results. About six years ago he began to study the children at the Foundling Hospital during the active stages of and convalescence from the diseases mentioned. It occurred to him that the Vincent's Angina observed in their mouths was the starting point of cancrum oris, and if this could be arrested, the origin of this destructive disease was found, and his observations since have proven this theory to be correct. Cancrum oris is an aggravated Vincent's Angina neglected at its inception. The usual antiseptics and caustics were tried and discarded, until he began to get results with trichloroacetic acid. He started using a twenty per cent solution of Merck's preparation, but has since found that acid in the full strength gave him the best results. The caustic is applied to a freshly cleansed surface and to avoid extensive cauterization, the tissues are painted with melted vaselin or cacao butter, leaving only the infected area exposed. To lessen the pain of cauterization he drops

a few crystals in six or eight drops of a four per cent solution of novocain, and the results are satisfactory, judging by the absence of pain. In addition to the cauterization, which is repeated every second or third day as needed, the mouth is irrigated with a one-half per cent solution of formaldehyd, or if the odor is very bad (there is a characteristic odor in advanced cases) he alternates with irrigations of potassium permanganate. If taken early these cases of Vincent's Angina appearing first as a gray ulcerative area, at the gums or on the inner side of the cheek, will clear up in three to five days. If allowed to develop, pockets will appear between the teeth, and large ulcerative patches, on the gums, lips and cheeks. In the more advanced, we have extensive necrotic areas of bone, a black gangrene of the soft tissues, and perforation of the cheeks. At the time of writing he had in one ward of the hospital seven cases; four were entirely free in four days, two on the sixth, and the seventh discharged on the eighth day. One child infected its clitoris, and another its rectum. The treatment in each was as in the oral cases, and both were discharged within ten days.

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**Secretin:** In the July number of *Pediatrics*, Henry R. Harrower, states that as our knowledge increases one cannot but believe that the present position regarding the control of summer complaints in children will be strengthened, and the importance of clean food and gastrointestinal antiseptics emphasized. He desires rather to call attention to a means of treatment regarding which practically nothing is to be found in the literature, which from a physiological standpoint, as well as from clinical experience, has proved itself to be worthy of consideration. Since Bayliss and Starling discovered secretin, and a host of experimental physiologists have emphasized the essential part that this hormone plays in the physiology of digestion, attempts have been made to make use of this fundamental idea in therapeutics. The essential facts concerning it are: (1) Secretin is a definite chemical substance found in the walls of the duodenum which, passing through humoral channels, reaches the pancreas, and other glands, and activates their products. It is even stated that secretin combines with the precursors of the digestive fluids, and forms a part of the complete digestive ferments. (2) The normal production of secretin is dependent upon the stimulus afforded by the passage from the stomach of acid chyle, the acid content of which seems to exert a specific influence upon the precursors of secretin the "prosecretin" so called, liberating it for the service just mentioned. (3) Several investigators have drawn attention to serious nutritional disturbances which are due to changes in the duodenal walls, and loss or diminution in its secretin forming properties. Wentworth has made an interesting study on the relation of the absence of secretin in the duodena of children dying from infantile atrophy and malnutrition and indicates that this is a factor which should not be overlooked. (4) Secretin has been used in the treatment of certain forms of indigestion—especially the "digestive insufficiencies" with very good results. Boardman Reed calls attention to its superiority over the ordinary digestives and tonics. One thing is evident however; secretin exerts a very effective stimulus to gastrointestinal function, and this stimulation is normal and physiologic, and usually followed by no reaction. Flatulence and fermentation seem to be controlled very effectively, and limited experience with infantile indigestions, and especially the summer types shows that this is a means of treatment worthy of further study and consideration. It cannot be denied that by far the best antiseptics for the reduction of toxic conditions in the intestine are its natural juices. Secretin plays the most important part in their production and it influences, not only the stomach or pancreas, but also the production of bile and intestinal juices from the pylorus to the ileum. The application of this idea in the treatment of chronic gastric disorders is encouraging, and he firmly believes it destined to be an important aid in these conditions.

**Digitalis:** Cary Eggleston in the *Journal, A. M. A.*, for Sept. 6th, reports a number of clinical observations on the emetic action of digitalis. His conclusions are: (1) There is neither valid experimental nor clinical evidence that therapeutic doses of the digitalis bodies cause nausea or vomiting through local irritant action on the alimentary tract. (2) There is very strong evidence, both experimental and clinical, for the statement that the digitalis bodies do not cause nausea or vomiting by local irritation of the alimentary tract. (3) There is experimental evidence that the nausea and vomiting resulting from therapeutic quantities of these bodies are due solely to their direct action on the vomiting center, and therefore result only after the absorption of a sufficient amount of the drug. (4) The clinical evidence brought forth in the paper is in agreement with all preceding experimental evidence to the effect that nausea and vomiting from therapeutic quantities of the digitalis bodies result from their absorption, and not from their local action. (5) The conclusion that the nausea and vomiting resulting from the therapeutic use of these bodies in man, are due to their direct action on the vomiting center is a logical necessity. From these conclusions he wishes to make one deduction. Inasmuch as it has been shown that all true digitalis bodies produce nausea and vomiting by direct central action, it is fallacious, and wholly irrational to seek to avoid these symptoms resulting from the oral administration of any given preparation, by resort to another preparation or to another channel of administration. Such means have been resorted to frequently, and often with a disappearance of the nausea or vomiting, when this has been the case, the new preparation has been either weaker or less well absorbed, or the new channel has been one from which absorption has been less complete such observations do not in any way contradict his conclusions, but rather support them.

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**Erysipelas:** The *New York Medical Journal* for July 26th, states that although Pollatschek believes that renal complications occur in about thirty-eight per cent of all cases of Erysipelas, more recent observations have shown that pathological urine is voided in so large a proportion of cases, that it becomes a question whether the kidneys are not always the seat of inflammatory lesions. Of four hundred and eighty-three reports of cases of Erysipelas examined by Borton and Blackburn, three hundred and twenty-seven showed pathological urine—a proportion over twice that recorded by Pollatschek. Another morbid feature which may attend such cases and to which attention was called last year by Lesné, Françon and Gérard, is the occasional presence of a streptococcic septicemia, which almost always becomes complicated with infectious endocarditis. It is often overlooked, physical signs denoting endocarditis being seldom detected in erysipelas. It has yielded so little to treatment that the so called "expectant plan" and supportive measures have been advocated by not a few clinicians, the development of sufficient specific resistance on the part of the body being depended upon to check the progress of the disease. There is good ground for the belief, however, that it is precisely in these neglected cases that renal and cardiac changes are apt to occur. Of the newer local measures, those in which heat is a predominant factor, seem to have held their own. Hot compresses of saline solution, the hot air douche and magnesium sulphate in saturated have been recently recommended. As to general remedies, the tincture of the chloride of iron still holds its own, while an immediate dose of calomel has also maintained its reputation, of the newer measures, diphtheria antitoxine, bacterial vaccines, and antistreptococcic serum. All have sanguine advocates, the salient feature, however, is their early employment, before the pathogenic organisms have had time to irritate the lethal trend.

**Strychnin:** W. P. Lucas in the *Medical Record* for Sept. 6th, reports a study of the effects of strychnin and caffein upon the heart in children. There is conflicting evidence from the pharmacologist and the clinician in regard to the value of strychnin. He had found that strychnin was practically of no effect when given in the ordinary doses in which it is prescribed for children. It was only when doses amounting to one-tenth of a grain or more were given (either in one dose, or in a quick succession of smaller doses), that any appreciable effect was noted, and then the effect appeared within thirty minutes, and disappeared in two hours. He concludes that strychnin and caffein in the doses usually employed for cardiac stimulation are of no value. It was only when maximum doses are employed that an effect is obtained and this is usually of short duration, whether this was a beneficial effect was even questionable in children with cardiac involvement. It may be as Sollman has suggested, that strychnin stimulation makes the heart work harder and that it should not be used as a cardiac stimulant. Its effect in conventional doses on respiration was of no value. In large doses it did not appear to slow respiration to a point where there were toxic symptoms of increased hypersensitiveness of the reflex arc, or where the heart action became more rapid, and the blood pressure fell.

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### New and Nonofficial Remedies

Since the publication of *New and Nonofficial Remedies*, 1913, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

**Digipuratum Ampules.**—Each ampule contains 1 Cc. of a digipuratum solution, equivalent to .1 gram digipuratum. Knoll & Co., New York (*Jour. A. M. A., Aug. 23, 1913, p. 668*).

**Digipuratum Solution for Oral Use.**—Vials containing 10 Cc. digipuratum solution, each Cc. representing .1 gram digipuratum. Knoll & Co., New York (*Jour. A. M. A., Aug. 23, 1913, p. 568*).

**Tetanus Antitoxin.**—For description of Tetanus Antitoxin see *N. N. R.*, 1913, p. 218. H. M. Alexander & Co., Marietta, Pa.

**Acne Vaccine.**—For description of Acne Vaccine, see *N. N. R.*, 1913, p. 221. Schieffelin & Co., New York.

**Pertussis Vaccine.**—Pertussis Vaccine is a *Bacillus Bordet—Gengou* Vaccine. Schieffelin & Co., New York.

**Meningococcus Vaccine.**—For description of Meningococcus Vaccine see *N. N. R.*, 1913, p. 223. Schieffelin & Co., New York.

**Coli Vaccine (Polyvalent).**—For description of *Bacillus Coli* Vaccine see *N. N. R.*, 1913, p. 221. Schieffelin & Co., New York.

**Gonococcus Vaccine (Polyvalent).**—For description of *Gonococcus* Vaccine see *N. N. R.*, 1913, p. 223. Schieffelin & Co., New York.

**Pneumococcus Vaccine (Polyvalent).**—For description of *Pneumococcus* Vaccine see *N. N. R.*, 1913, p. 224. Schieffelin & Co., New York.

**Staphylococcus Vaccine (Polyvalent).**—Schieffelin & Co., New York.

**Staphylococcus Albus Vaccine (Polyvalent).**—Schieffelin & Co., New York.

**Staphylococcus Aureus Vaccine (Polyvalent).**—For description of *Staphylococcus* Vaccine see *N. N. R.*, 1913, p. 225. Schieffelin & Co., New York.

**Streptococcus Vaccine (Polyvalent).**—For description of *Streptococcus* Vaccine see *N. N. R.*, 1913, p. 226. Schieffelin & Co., New York.

**Typhoid Vaccine.**—For description of Typhoid Vaccine see *N. N. R.*, 1913, p. 227. Schieffelin & Co., New York.

Since August 1 the following articles have been accepted for inclusion with New and Nonofficial Remedies :

Comar & Co.—

Electr-Hg.

Cutter Laboratories—

Acne Bacillus Vaccine.

Coli Vaccine.

Pneumococcus Vaccine.

Pyocyaneus Vaccine.

Staphylococcic Vaccine.

Streptococcic Vaccine.

Typhoid Vaccine.

Typhoid Prophylactic Suspension.

Farbwerke-Hoechst Co.—

Melubrin.

Lederle Laboratories—

Scarlet Fever Treatment.

Scarlet Fever Prophylactic.

Antigonococcus Serum 10 Cc. syringe.

Antimeningococcus Serum 15 Cc. cylinder.

Antistreptococcus Serum 10 Cc. syringe.

Antistreptococcus Serum 50 Cc. cylinder.

Antipneumococcus Serum 10 Cc. syringe.

Antipneumococcus Serum 50 Cc. cylinder.

Normal Horse Serum 10 Cc. syringe.

Normal Horse Serum 100 Cc. vial.

National Vaccine and Antitoxin Institute—

Antityphoid Vaccine (Immunizing).

Sophian-Hall-Alexander Laboratories—

Whooping Cough Vaccine.

Yours truly,

W. A. Ruckner, Secy.

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### Book Reviews

The Practical Medicine Series. Vol. I, Series 1913: General Medicine. Edited by Frank Billings, M. S., M. D., Head of the Medical Department and Dean of the Faculty of Rush Medical College; and J. H. Salisbury, A. M., M. D., Professor of Medicine, Chicago Clinical School. Cloth, 404 pages, with 13 figures in the text and 12 plates. \$1.50. The Year Book Publishers, Chicago.

The present volume gives an excellent summary of the literature during the past year, relating to infectious diseases, diseases of the circulatory organs and blood vessels, diseases of the blood and blood making organs, diseases of the ductless glands, diseases of metabolism, and diseases of the kidneys. The discussion of the literature of tuberculosis is exceptionally good and occupies 115 pages. The recent advances in the study of pneumonia are fully treated. It would hardly seem necessary in a book of this type to devote several pages to the description of the various forms of instruments for taking blood pressure. Altogether this volume is a very comprehensive and interesting review, and I think that anyone who has read several of these volumes from year to year, looks forward to the appearance of the next. J. P.

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Manual of Medicine for Nurses, by George H. Hoxie, M. D., Physician to the German Hospital, Kansas City, Mo., and Pearl L. Laptad, formerly Principal of the Training School for Nurses of the University of Kansas. Second edition, rewritten and enlarged. 12mo of 351 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$1.50, net.



The author who attempts to write a text book of medicine for nurses has a difficult task. He must present a great many facts in simple form because the great tendency in writing such text books is to make them too technical. What is necessary is to give the general principles underlying disease in such a form that the nurse will have a general comprehension of medicine, so that she will be able to carry out the doctor's orders intelligently and be prepared to notice any unusual development in the patient's condition. This Dr. Hoxie has succeeded in doing, and this book can be recommended for nurses. There is one chapter on the care of the patient and the sick room that should be read by every physician and medical student.

J. P.

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Applied Pathology in Diagnosis and Treatment. By Julius M. Bernstein, M. D. (Lond.); D. P. H. (Camb.); M. R. C. P. Assistant Physician (Late Pathologist) to the West London Hospital; Lecturer in Clinical Pathology to the Post-graduate College; Physician to the Putney Hospital and to the Royal Ear Hospital; Lecturer in Bacteriology to the Westminster Hospital Medical School, etc. Cloth, 395 pages, illustrated with five colored plates and forty-six drawings, price, \$3.75. University of London Press, London, 1913.

The American reviewer will find it a difficult task to place this work in a niche in which it will find a field of usefulness. The amount of careful and critical effort that has been expended upon clinical pathological subjects during the recent years has been enormous—and personal views on the various subjects have been subjected to severe criticism. The author of the book under discussion says in his preface, "consequently these (my lectures) were taken down verbatim at the time of delivery, and their reproduction in lecture form must be the excuse for some of their imperfections in literary style," and further, "no attempt has been made to produce a practical manual for the laboratory worker." Such an admission leaves little room for further comment. Most "busy practitioners and senior students" for whom, the author states this book was written, will demand a much more comprehensive work dealing with this subject. For example in the author's section dealing with Vincent's Angina he dismisses the subject with a very brief note of sixty-six words in which he classes the disease as a suppurative process. This is hardly true for it is purely an ulcerative disease.

The arrangement of the book is good; the subjects discussed of sufficient number and the facts stated in the main true, but the discussions are wholly inadequate to satisfy the wants of the majority of medical men. The illustrations of pathological blood are as good, or even better, than found in a number of excellent text books on clinical microscopy, but the reproductions from the cinematograph films of living microorganisms by Pathé Frères are very poor, especially those on page 276, of "material from the mouth in Vincent's Angina," where the "spirochaetae" can scarcely be recognized and the fusiform bacilli are not even shown. page 62 of spirochaeta gallinarum, and page 48 of trypanosomes. The plate on page 240 of spirochaetae pallida is excellent.

There may be a place for such a book as this in England, but in this country we are amply supplied.

H. O. R.

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### Acknowledgements

A Treatise on the Diseases of Women. For Students and Practitioners. By Palmer Findley, B. S., M. D., Professor of Gynecology, College of Medicine, State University of Nebraska; Gynecologist to the Clarkson Memorial Hospital and Douglas County Hospital; Fellow of the American Gynecological Society; Fellow of the American Association of Obstetricians and Gynecologists; Fellow of the Chicago Gynecological Society. Octavo, 954 pages, illustrated with 632 engravings in the text and 38 plates

in colors and monochrome. Cloth, \$6.00 net. Lea & Febiger, Philadelphia and New York, 1913.

The Diseases of Children. By Henry Enos Tuley, M. D. Price, \$5.50. C. V. Mosby Company.

The Protein Split Products in Relation to Immunity and Disease. By Victor C. Vaughan, M. D., LL. D., Dean of the Department of Medicine and Surgery of the University of Michigan, Victor C. Vaughan, Jr., M. D., A. B., in charge of the Tuberculosis Work of the Detroit Board of Health and J. Walter Vaughan, M. D., A. B., junior attending Surgeon to Harper Hospital, Detroit. 12mo., 476 pages, illustrated. Cloth, \$3.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

The Doctor in Court. By Edwin Valentine Mitchell, LL. B., of the Massachusetts Bar. Cloth, \$1.00. Rebman Company, New York.

The Principles and Practice of Gynecology. For Students and Practitioners. By E. C. Dudley, A. M., M. D., Professor of Gynecology in the Northwestern University Medical School, Chicago. Sixth Edition, thoroughly revised. Octavo, 795 pages, with 439 illustrations, of which many are in colors, and 24 full-page plates. Cloth, \$5.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

Digest of Comments on the Pharmacopoeia of the United States of America. (Eighth Decennial Revision), and on the National Formulary (Third Edition). For the Calendar Year Ending December 31, 1911. By Murray Galt Molter and Martin T. Wilbert.

Bulletin No. 87—Hygienic Laboratory, Treasury Department, W. S. P. H. Service, Government Printing Office, Washington.

Proceedings of the Pathological Society of Philadelphia. New Series, Volume XV. Containing the Transactions of the Society from January, 1912, to January, 1913. Edited by Fred H. Klaer, M. D., Recorder of the Society.

Northwestern University Bulletin. Medical School Announcement 1913-1914. Published by the University, 2431 Dearborn Street, Chicago.

Weekly Bulletin of the Department of Health of the City of New York. New Series, Volume II. No. 35.

Shower Bath For Country Houses. A Serviceable and Inexpensive Shower Bath Readily Improved in Town and Country. By Carroll Fox, Surgeon, United States Public Health Service. Supplement No. 7 to the Public Health Reports, Government Printing Office, Washington.

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## Medical News

Dr. H. H. Bowman of Canton, Ohio, is recovering nicely from his recent hunting accident, and we are glad to report the probable complete recovery of his eye sight.

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**Meeting of the Clinical and Pathological Section of Cleveland Academy.**—The ninety-fifth regular meeting of the Clinical and Pathological Section of the Academy of Medicine of Cleveland was held Friday evening, October 3. The following papers were presented for discussion:

Report of a Case of Banti 'o Disease with Splenectomy, by F. C. Herrick, M. D.

Treatment of Infantile Paralysis, by G. I. Bauman, M. D.

Continued Fever in Children, by John Phillips, M. D.

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**Will Decide on Use For Hospital.**—President Thomas E. Davey of the state administration board, appointed five heads of state institutions to investigate and report on what is to be done with the new \$2,000,000 State Hospital for criminal insane that is now nearing completion at Lima.

On the committee are Doctor H. C. Eyman of the Massillon State Hospital, Doctor E. J. Emerick of the State School for Feeble Minded at Columbus, Doctor Charles H. Clark of the Cleveland State Hospital, Doctor J. A. Leonard of the Mansfield Reformatory, and Warden P. E. Thomas of the penitentiary. The new institution has a capacity of from 1200 to 1500 inmates, but there are only a few hundred of the state's criminal insane to put into it.

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**American Association of Progressive Medicine.**—At the annual convention of American Association of Progressive Medicine held at Poughkeepsie, N. Y., last week, Doctor N. G. Vassar of Ridgeway, O., was elected treasurer for the coming year. This is a new association composed of all schools of medicine to meet annually for a full week of Post Graduate lectures and clinics. There were doctors in attendance from 38 states and many from foreign countries. Some twelve hundred new names were presented for membership at this meeting. The next meeting of the association will be held in St. Louis the first week in September next. Doctor Vassar is well known by the members of the medical profession in Logan and Hardin counties. Some of which have already joined the new association.

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**Ninth District Medical Society Meeting in Portsmouth.**—Eight counties of Southern Ohio will be represented and between 70 and 80 physicians are expected to attend the eleventh annual meeting of the Ninth District Medical Society to be held in Portsmouth, Tuesday, October 7th.

The headquarters for the meeting will be held at the Washington Hotel. Following is the official program:

10:00 a. m.—Business session. Reading of Minutes. Address of President, Dr. A. L. Test, Portsmouth. Appointment of Committees.

1:00 p. m.—Reports of Committees. Reading of Papers. Treatment of Fractures, S. S. Halderman, Portsmouth. Cancer (lantern demonstration), J. C. Bloodgood, John Hopkins University, Baltimore. Tuberculosis, Everett Morgan, Jackson. Hypertrophy of Prostate, O. W. Robe, Portsmouth. Address, Geo. A. Fackler, Cincinnati, President Ohio State Medical Association. Report of Interesting Cases. Automobile ride over city.

7:30 p. m.—Banquet. Officers: John E. Sylvester, Wellston, District Councilor; A. L. Test, Portsmouth, President; L. G. Locke, Portsmouth, Secretary. Vice Presidents: C. L. Parker, Gallipolis; J. H. Ray, Coalton; L. A. Thomas, Middleport; O. U. Oneil, Ironton; W. S. Rhodes, Carbon Hill; L. E. Lewis, Omega; G. W. Chabot, Portsmouth; J. W. Murphy, Eagle Mills.

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**Eye, Ear and Throat Men to Meet in Chattanooga.**—The eighteenth annual meeting of the American Academy of Ophthalmology and Otolaryngology will be held in Chattanooga, Tenn., October 27-29. The address of the occasion will be presented by Colonel R. H. Elliott, I. M. S., Madras, India.

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**Meeting of Obstetricians and Gynecologists.**—At the twenty-sixth annual meeting of the American Association of Obstetricians and Gynecologists, held in Providence, R. I., September 16 to 18, the following officers were elected; President, Doctor Charles N. Smith, Toledo, Ohio; Vice Presidents, Doctor Hugo O. Pantzer, Indianapolis, Ind., and Doctor J. H. Branham, Baltimore, Md.; Secretary, Doctor E. Gustav Zinke, Cincinnati, Ohio (re-elected); Executive Council, Doctors Charles L. Bonifield, Cincinnati, Ohio; Herman E. Hayd, Buffalo, N. Y.; John W. Keefe,

Providence, R. I.; X. O. Werder, Pittsburgh, Pa.; Miles F. Porter, Fort Wayne, Ind., and Louis Frank, Louisville, Ky.

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**New Officers of Public Health Association.**—At the annual meeting of the American Public Health Association, held in Colorado Springs, September 9 to 12, the following officers were elected: President, Doctor W. C. Woodward, Washington, D. C.; Vice Presidents, Doctors John F. Anderson, U. S. P. H. S., Washington, D. C.; Mario Labredo, Havana, Cuba, and C. J. Hastings, Toronto, Ont. Secretary, Professor Selskar M. Gunn, Boston (re-elected). Treasurer, Doctor Livingston Farrand, New York City (re-elected). Lee K. Fraenkel, New York City, was appointed chairman of a new committee to unite more closely the sociologic section of the association with that of vital statistics, and also to interest large corporations in the industrial health campaign now being urged. The Section of Public Health Officers elected Doctor C. V. Chapin, Providence, R. I., chairman; Doctor Nolan Pauchan, Ottawa, vice chairman, and re-elected Doctor E. C. Levy, Richmond, Va., secretary, and Doctor A. S. Fell, Trenton, N. J., recorder. Jacksonville, Fla., was selected as the next place of meeting.

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### Deaths

**William E. Shaw**, for twenty years physician at Camp Washington, and practitioner in Cincinnati; for past three years resident of Santa Rosa, California; died suddenly, September 5.

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**William Cecil Stafford**, Medical College of Detroit; of Youngstown; died September 15; aged 66.

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**Charles A. Juergens**, a native of Varel, Oldenberg, Germany; for forty-five years a practicing physician in Springfield, Ohio; died September 18, aged 72.

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**Reuben B. Keeran**, Eclectic Medical College, Cincinnati; was a practitioner in Hancock County for twenty-seven years; died at his home in Findlay, September 6, from asthma, aged 60.

# The Cleveland Medical Journal

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VOL. XII

OCTOBER

No. 10

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## THE SOCIAL EVIL IN RELATION TO THE HEALTH PROBLEM

By J. H. LANDIS, M. D., Health Officer, Cincinnati, O.

Most health problems resolve themselves into questions of heredity or environment. The health problem presented by the social evil is a question involving both of these and, in addition, the sexual instinct. The three combined produce a problem that has vexed mankind throughout all history.

Sexual intercourse is a response to a primal instinct; an instinct as insistent as that of hunger or thirst. Its promiscuous gratification creates the social evil with its attendant health problem.

Man's lust is the corner stone on which the whole problem rests. Heredity and environment are conditions created by man's lust and, once established, form a vicious circle which contaminates those coming within its influence.

Until quite recently the medical profession has been chiefly concerned in caring for the pathological end of the problem; dealing with end results.

No sanitary problem has ever been solved by caring for its victims. Treating syphilis and gonorrhoea has about as much influence in getting at the base of the evil as would the snipping off of a few leaves have in cutting down a forest.

Practically everyone has a remedy. All of these remedies fail when applied. Social ostracism, branding, imprisonment, burning at the stake—all have failed.

Recently it has been suggested that visitors to places of prostitution be photographed, and by another social worker that they be compelled to register their names. These suggestions were made in all seriousness and are given as samples of the impractical ideas that are being born. It is easy to imagine

with what leaps and bounds the Doe family would multiply and how the snapping of photographic shutters would produce a din like unto the roar of a rapid fire gun had these two methods been placed in operation.

Any scheme which ignores the sexual instinct as the basic cause of the social evil is bound to fail.

Education, segregation, suppression, regulation, and medical inspection have all been tried; and all have failed. They have failed because you cannot eliminate a primal instinct by education. Segregation failed because only a small proportion of prostitutes declared themselves, and segregation—no difference how perfect it may be—does not eliminate the social evil but simply concentrates it within certain boundaries.

Suppression failed because it does not suppress, but scatters and multiplies the centers of infection.

Regulation failed because it was a compromise and because it placed an instrument in the hands of officials that was used for purposes of extortion and blackmail and that led to the debauching of public officials.

Medical inspection, the only method which gives any reason to hope that the evils resulting may be mitigated, has failed or succeeded according to the individual point of view. As carried on in this city by some private physicians, it not only contributes to moral delinquency but actually increases the number of cases of venereal diseases.

A sanitary inspection was recently made in this city of about one-third of the inmates of known houses of prostitution. Twenty per cent of the inmates were found diseased and were working under certificates of health dated within a week of the inspection and, in most instances, within from twenty-four to forty-eight hours of inspection.

In a number of cases the diseased prostitute was under treatment for venereal disease by the man signing the certificate of health in which he stated over his signature that she was free from venereal disease.

This is not medical inspection, but one way of securing money by false pretenses, and leaves no one in doubt as to which is the worse prostitute—the woman or the physician signing the certificate.

Some people see a solution in a minimum wage law. Granting the constitutionality of such a law, how are employers of

labor to be forced to employ people whose services are worth less than the minimum wage?

On the present standard of wages, a great army of women are living respectably and comfortably, although not luxuriously. What is to become of these if a minimum wage law makes it impossible for them to work? They must eat, have clothing, and places of shelter! Isn't there a very grave probability that the method employed, instead of protecting them from lives of prostitution, will throw them into it as the only source of livelihood?

Doctor Watson has said that an investigation of the reasons for leading lives of prostitution disclosed the fact that only ten per cent of these women are in houses of prostitution because of failure to make a living in other walks of life. Would a minimum wage law, even if possible of universal enforcement, remove the basic cause of the social evil?

The numerous scandals in families rich in this world's goods have no possible connection with low wages and give the lie to those who would lay the whole blame on the poor.

Others find a solution in a single standard of purity. Back of everything that exists lie definite causes, and the double standard of purity exists because of a variety of reasons.

Society condones man's moral lapse. If a woman falls, she is eternally dammed. Society merely elevates its eyebrows when a man goes wrong. He is the victim of a designing woman. When the woman comes up for judgment, it is a case of thumbs down. The father of the race may be a past master in debauchery, but society demands that the mother be without taint or blemish of immorality. These are some of the reasons why the double standard of purity exists.

Differences in environment, due to occupation, multiply the opportunities leading to man's temptation. This is another reason for the double standard. Another is woman's fear of maternity with the attendant disgrace. And still another, more potent than all others combined, a double standard of sexual desire.

Would the establishment of a single standard wipe out these reasons? It has taken at least sixty centuries to transform man's best friend, the dog, into the docile animal that he is today. By what feat of necromancy is a Russian wolf to bridge the centuries at a single bound? How is man to have his sexual instinct robbed of its dross, thereby placing him on a par with woman?

Who would suggest that her high ideals be toned down, thereby consigning her to the ooze and slime of man's moral degradation.

A few years ago a college professor in a neighboring city leaped into infamy by advocating a season of immorality for women, claiming that the experience gained thereby would "fit them to become better wives and mothers."

This is given for the sole purpose of illustrating the degree of imbecility possible of attainment by some of the half-baked theorists who labor under the mild delusion that they are thinkers.

What are some of the more important factors contributing to the social evil and to the health problem under discussion?

Modern industrialism is one of the most important. America is rapidly becoming urban. The occasional contact of the sexes found in rural districts has given way to practically constant contact in the cities. Woman's sphere in the world has ceased to be domestic, and every day finds her invading some occupation heretofore filled by man. Opportunities for deviating from the straight and narrow path do not have to be arranged; they just happen as a natural result of environment.

Every time that a match is struck in a powder magazine, the elements necessary for an explosion are present. In proportion as modern industrialism brings the sexes in close contact, in the same proportion are the chances of sexual explosions made possible.

The infidel and agnostic have contributed materially to the spread of vice. Religion is a powerful deterrent in preventing immorality. It not only accomplishes this by reason of the lofty ideals taught, but by engendering a wholesome fear of future punishment. Moral precepts taught in the home and in the church at the most impressionable period of life are not easily brushed aside.

It is not to be assumed that all agnostics and infidels are immoral any more than it is to be assumed that all professed believers in God are moral, but, other things being equal, the deeply religious man is less liable to yield to temptation than his brother who has no religious scruples to restrain him.

The medical profession is partially responsible for the health problem due to the social evil.

Some physicians advise young men to commit immoral acts, giving as a reason that continence is followed by nervous con-



ditions due to a failure to exercise a normal physiological function. While this may be true in a few isolated instances, it can be said without fear of successful contradiction that where continence causes one neurasthenic, incontinence causes hundreds to go insane, or to become paretic, or blasts the offspring with idiocy or with blindness from birth, or sends him through life with the evidence of a dissolute ancestry stamped on his features.

In no other condition, with the possible exception of alcoholism, are the sins of the father visited upon the children with greater certainty than in venereal diseases.

"The increased cost of living" is a cause of prostitution according to some students of the problem. This statement bears a very close resemblance to the old feat of getting the cart before the horse. The Vice Commission of Chicago, after a very careful and painstaking investigation covering a period of nearly one year, estimated that the 1,112 prostitutes under surveillance by the Commission cost that city \$16,000,000 annually.

Isn't it nearer the truth to say that increased cost of living is a result of prostitution rather than a cause of it? Who supports vice, the indigent public or the well-to-do?

The claim has been made time and time again that without the support of married men fifty per cent of immoral houses would go out of existence.

An incident occurring during the recent sanitary survey may throw some light on this phase of the problem. In what is technically known in red light society as a "five dollar house," nine inmates were examined and four found actively infectious. The madam registered a vigorous protest in the Health Department against quarantining these four, giving as a reason that there couldn't possibly be anything wrong with her "little girls" as they entertained regular customers only and that these were all married men.

The divorce courts furnish as substantial an alibi for the poor man as it does for the poor woman. The odium attached to the social evil cannot be unloaded on the poor. Rich and poor men alike have the sexual instinct, but poverty entails limitations on its promiscuous gratification, and thus it comes about that much of the history of the world deals with the immorality of the rich and powerful.

Lack of occupation contributes enormously to the social evil

with its attendant health problem. An excess of this world's goods over that actually necessary means idleness in the vast majority of instances.

Man must have an occupation, and a legitimate one is the best balance wheel in the world. To have a legitimate occupation, the majority of people must have an incentive to work. Means to buy food, clothing and shelter, and lay aside a bit for the rainy day are the usual incentives to work. Take these away, and man is left without a legitimate occupation. Too often he drifts into various forms of dissipation. In every community of any considerable size can be found idle rich men whose chief diversion is the pursuit of women. They become professional seducers, and their victims furnish a considerable proportion of the inmates found in immoral houses.

Inherited wealth is one of the heaviest handicaps a young man can carry. Man lies, cheats, steals and sometimes honestly acquires money in order that he may pile up a fortune for his children, with constant examples before him showing that this is one of the surest ways of damming his offspring.

Lascivious books and plays, and erotic pictures are responsible for a considerable number of lapses from the straight and narrow path.

While some of the most powerful sermons are preached from the stage, too often the tendency is towards the corruption of public morals.

Several months ago a comic opera was presented in one of the leading theatres of this city which offended every sense of moral decency. With but few exceptions, the female characters impersonated were denizens of the twilight zone.

School teachers will tell you that innocent children, hardly old enough to be out of their mothers' arms, have been found with books reeking with obscene pictures and stories.

Several years ago the Cincinnati market for books was flooded with an edition of old stories, the sale of which had been held up by Federal Court action because of their erotic nature. Following this action, the books were released for sale by a judge who must have been a mental and moral pervert. The facts were given due prominence by the advertisers and, from a list of subscribers shown by the salesman, quite a number of private libraries in homes in this city have these alleged evidences of good literature on their shelves.

Styles in dress are dictated very largely by the prostitutes of Paris. They are designed for the purpose of showing to the best advertising advantage the figure of the wearer. These styles are copied all over the world and by women who would be properly horrified at the idea that they were contributing to the temptation and fall of man. Miss Ida Tarbell, in a recent article in the *New York World*, has the following to say concerning woman's part in her own downfall: "After all the arguments have been advanced to prove that upon man should be placed the blame when women sacrifice their virtue, the plain fact remains that except when violence is employed, the issue depends finally upon the consent of the woman. What I mean is that many unthinking women will, whenever occasion offers, use their sex, consciously or unconsciously, for the purpose of gaining influence over men. If the matter is faced frankly, it is precisely a man hunt, the ordinary parade on the street, disguised if you will by silks and lace, but none the less a man hunt."

The influence of alcohol as a contributor to moral delinquency and to the social evil with its attendant health problem cannot be overestimated. The saloon is the most powerful factor in the pollution of a community. Alcohol destroys judgment and dissipates fear of consequences. It is supposed to act as an erotic stimulant, but the truth is that it paralyzes fear of responsibility.

A large percentage of cases of venereal diseases are contracted while the victim is under the influence of alcohol.

Judgment and discretion are thrown to the four winds, and with them centuries of training and refinement. Owing to the widespread systematic paralyzing influence of the poison, resistance is lowered and infection is made easy.

Cut out the saloon and the sale of intoxicants in disorderly houses, and a great step towards the solution of the social evil will have been taken.

In Chicago all houses of prostitution have been suppressed in the old segregated district. Prostitution is still carried on, however, in connection with a large number of saloons, the claim being made that the liquor interests are using their power to defeat suppression in these places. If this is true, it is difficult to understand just what has been accomplished in closing the segregated district.

When Pandora let loose the vices, they mated and other

vices were born, exhibiting in full degree the ancestral taint. These in turn mated, and so the process went on until the finished degenerate product of them all, a two-headed monster, alcoholism and prostitution came into the world!

Having thus briefly considered a few of the important causes making the social evil possible as a health problem, what can be said concerning the various methods used to minimize that problem? What would be the result if cases of the plague were segregated within certain defined areas and plague-infected rats were permitted to run at large? How soon would an epidemic of cholera be suppressed if patients sick with this disease were given hospital treatment and their evacuations unsterilized cast into some stream from which cities and towns obtained their water supply? Of what value would medical inspection be in an outbreak of smallpox in which women only were subjected to inspection and isolation?

Great difficulty is experienced in arriving at a conclusion as to what method of handling the social evil promises most in solving the health problem created by the evil.

Segregation certainly does not solve the problem for it does not segregate. No one advocating this plan has claimed that it touches more than a small minority of women engaged in prostitution.

Prostitution is prostitution whether the prostitute carries on her profession publicly or clandestinely. The disease resulting from it is just as sure to follow whether she operates from a known center or by stealth. Concentration of all immoral women, even if possible, would have no effect on the health problem except to make it more difficult of solution. It would, to an extent at least, legalize an illegal act and throw a mantle of protection about a course of conduct that, according to law, should be suppressed with an iron hand. It tears down all the barriers erected by society and makes immorality easy where it should be difficult or impossible. It hands over to the authorities in control an instrument for blackmail that has led to endless scandal and that has resulted in every variety of crime from extortion to deliberate assassination.

Education in sex hygiene unquestionably has done a great deal of good, but it has its limitations. Many of those best qualified from an educational standpoint to resist temptation are far

from being examples of morality, and the possession of knowledge does not necessarily mean its application.

Very few people are qualified to teach sex hygiene to children. Very few parents know enough about it or possess the tact if they are informed to make it a safe subject for discussion, and fewer still are so constituted that they can assume the big brother or big sister attitude towards their children, which is so essential in developing character.

A shocking number of children are given a free hand in selecting their associates and going where they please by night and by day. The wonder is that so many of them escape the pitfalls on every hand.

Where individual members of society ignore their responsibility to their children, society at large should adopt some plan that would force children under a certain age to be at home during a certain specified time.

Education will accomplish nothing with the inherently vicious or defective individual, but it might easily save a large number who acquire vicious habits through no fault of their own.

Education will not eliminate the sexual instinct, but it will place at the disposal of individuals a knowledge of the dangers incurred that will act as a powerful curb in preventing its promiscuous gratification.

Medical inspection is employed in various European and American cities. It is good or bad according to the individual point of view. Theoretically, one diseased prostitute separated from her business should remove one dangerous center of infection, and the good thus accomplished should be multiplied by the total number of centers of infection eliminated.

One great trouble with medical inspection has been that it has failed to eliminate the diseased women. As a means of petty graft, it has been a success.

The lying certificates of health secured by a payment of fifty cents serve one useful purpose in that they illustrate the market price placed on some souls by their owners.

Many doubt its value, even if carried on honestly, claiming that it fails to reach the most numerous and that most dangerous class of prostitutes, the clandestine; that the certificate of health creates a false sense of security and stimulates immorality to such an extent that the good done by the elimination of one center of infection may be more than neutralized by an increased

number of exposures; that a certificate of health issued in good faith and on good evidence at a certain hour of the day may be absolutely misleading fifteen minutes later; that in the Philippines, medical inspection stimulated immorality and houses of prostitution were crowded with patrons immediately after inspection had occurred; that medical inspection with the issuance of certificates of health by a municipal department in reality amounts to licensing an illegal act; that it is the equivalent of what would result if a known counterfeiter was given a working certificate to go ahead and do business as long as he was not found with spurious coin in his possession; and that prostitution is illegal whether medically inspected or segregated, and any attempt at either can only be construed as an attempt to evade the law or as an acknowledgment that any attempt made to reach the condition by legal methods is a failure.

The results obtained in Norfolk, Va., would seem to throw considerable doubt on the correctness of some of these conclusions. Medical inspection is conducted every two weeks. Infectious cases are quarantined in the hospital. An average of 3,000 sailors are in the marine barracks and training station. Before inspection was inaugurated, an average of 250 cases of venereal diseases was under treatment. Since this plan was adopted, the average has fallen to fifteen, and the number of prostitutes under inspection has fallen from 700 to 400. Doctor Schenck expresses the opinion that inspection has decreased both prostitution and immorality.

Suppression has at least one strong argument in its favor; it is consistent with the law. Chicago, Minneapolis and Los Angeles have no segregated vice district. This result has been brought about largely through the recommendations of vice commissions after a careful investigation of local conditions in the various cities.

Suppression has, to an extent at least, interfered with commercialized vice. It has made it more difficult for panderers to dispose of their supply and has temporarily at least embarrassed the pimp in his capacity as manager.

By eliminating prostitution in certain prescribed areas, it has made excursions to these places impossible and has furnished business men with a legitimate excuse for failing to entertain some country customers in a way that has prevailed to a considerable degree in the past.

Groups of boys and young men who went to see the sights, got drunk and then received infection are safer than they were before suppression occurred.

Whether any real and lasting good has been accomplished has not been settled.

In Chicago, semi-respectable places have given way to the combination of saloon and house of prostitution.

In Minneapolis, to quote from her Vice Commission's report, "there has never been a period in Minneapolis within the memory of members of the Commission when the conditions as regards public prostitution were so generally satisfactory from the standpoint of the moral welfare of the whole community," and that "given a capable police administration, the evils of prostitution in Minneapolis can be kept down to a minimum under a system that will not recognize or tolerate it in any form," that "street walking, at least in its most obvious manifestations, has been greatly lessened as a factor in public prostitution," and that "the acknowledged brothel has ceased to exist in this city."

In suppressing prostitution in Minneapolis, one hundred and twenty inmates were affected. What became of them? To quote once more from the report, in answer to this question: "Many of these left the city promptly \* \* \*; some of those remaining in the city located themselves in the residence districts, where they have been living quietly, confining their operations to down town hotels and rooming houses. Others, who had been proprietors of brothels, retired to their private homes and have continued to live quietly. Still others joined women of their own type who had been living in down town business blocks or in flats or furnished rooms in the district between business and residence neighborhoods and have there been plying their trade singly or in pairs \* \* \*. Many of the houses contained in the old First Street District are now occupied by women clandestinely plying their trade of prostitution. These places carry the disguise of hotel or tobacco and soft drink stores. The women are relatively few in number, from one to three in a place. The inmates operate with extreme caution, with no outward signs of the character of the place, under constant harrying of the police and subject to frequent raids and fines."

The report directs attention to "the increasing use of the telephone as an agency in prostitution" and "the growing use of the assignation house and private flat."

It also refers to the fact that "while women have been generally excluded from saloons, there are several so-called cafes in the city whose operations are so flagrantly opposed to good public morals as to suggest strongly the necessity for official action. These places, ostensibly restaurants, cater almost exclusively to the wet goods trade. In practice they provide rendezvous for large numbers of prostitutes and their partners, and are rapidly transforming a respectable retail business street into a tenderloin district."

Under the heading "Young Girls on Our Streets," the report continues: "One of the most disturbing phases of the present situation in Minneapolis, and an alarming social symptom, is the large number of young girls in the streets at night in the downtown sections and in the business districts of the outlying sections. They may be found in numbers loitering about the fruit stores, drug stores and other popular locations, haunting hotel lobbies, crowding into the dance halls, the theatres and other amusement resorts, also in the saloon restaurants and chop suey places, and parading the streets and touring about in automobiles with men. It would not be fair to charge that all or a large proportion of these girls are prostitutes. It is perfectly plain, however, that many of those who are not are on the direct road."

While disclaiming that this condition is due to a closing of the old Sixth Ward resorts, or that it is peculiar to Minneapolis, the report adds, "that there are those who have deep convictions that there is a direct connection."

"Lack of Home Discipline" is given as the probable explanation. As evidence of the "seriousness of the situation," whatever its cause may be, the report, gives the result of a police census made in the evening of June 7th when "there were observed on the streets that evening, after ten o'clock, girls apparently minors and without adult escort to the number of 1,646."

The beauty about this report lies in the fact that it permits of satisfactory conclusions being drawn from any and all points of view.

The believer in suppression points with pride to the fact that "there are no places known to the commission where prostitutes are openly entertaining visitors."

In admitting that women are carrying on their occupation in "down town hotels and lodging houses," "the growing use of the assignation house and private flat," the rapid transformation



of "respectable retail business street into a tenderloin district," and the debauching of any considerable proportion of the 1646 young girls seen on the street in one evening after ten o'clock without adult escort, the report certainly furnishes highly explosive material for the man who believes that suppression fails to suppress but that it does scatter.

Is prostitution less dangerous when concentrated than it is when scattered and wearing the mask of a tobacco shop or a soft drink place?

Which offers the greatest opportunity for the procuress to work the downfall of young girls, an open and avowed house of prostitution where contact with innocent girls is impossible or an alleged place of legitimate business that makes contact easy and frequent?

Are the morals of a community safeguarded by transferring prostitution from a so-called segregated district to assignation houses and private flats?

Is gonorrhoea less liable to blind the infant or make an invalid of the wife, or will the offspring of a syphilitic come into the world free from the ancestral curse because the prospective husband and father contracts his disease in more respectable surroundings?

Assignation houses and private flats are more dangerous than public houses of prostitution. Many people of both sexes will go to them who would be horrified at the idea of entering a house of prostitution. They are training schools for vice, and their finished product is the professional prostitute. The closing of these places in Cincinnati has been a real step towards suppression for the reason that it has cut off one source of supply.

Los Angeles is another city in which public prostitution has been suppressed.

In order that more than one opinion could be secured as to the results obtained, letters of inquiry were addressed to the Mayor, Health Commissioner, and Chief of Police of that city. They are unanimous in reporting that no public house of prostitution exists in that city and that street walking is prohibited.

The Health Commissioner was unable to say whether venereal diseases had increased or decreased because no records of the prevalence of these diseases are kept.

The Mayor states that street walking occurs at infrequent

intervals and that it is immediately suppressed by arrests and fines.

The answer of the Chief of Police seems so fair a statement of existing conditions in Los Angeles that it is given in full.

"In reply to your inquiry concerning the manner in which we have attempted to solve the social evil, I beg to reply that it is not claimed by us that the problem has been solved, but that at least a step towards its solution has been taken. So long as you tolerate the segregated district or parlor house district, you have the same conditions to face and the same problems to handle. Whether or not the abolition of the segregated district gives rise to other problems just as difficult to handle cannot be answered offhand, but at least the foundation has been laid on which to build anew.

"It is true there are no houses of prostitution, known as such and running openly. It is also true that although the segregated district has been abolished, the Police Department is kept busy ferreting out these moral lepers, obtaining evidence, prosecuting and obtaining sentences on vagrancy charges. Friends of the segregated district claim that the only result has been to scatter prostitutes throughout the city; it is also claimed that there has been an increase in venereal diseases. The difficulty in either proving or disproving these claims lies in the fact that it is practically impossible to obtain any authentic figures or statistics. Whether or not we have succeeded even partially in solving the question, therefore, is a matter of personal opinion. For myself, after years of police experience, I want to go on record as stating emphatically that I am opposed to segregation.

"My opposition is based primarily on two arguments:

1. Segregation fails to segregate.
2. Segregation means graft in any administration.

"The principal argument of the proponents of segregation is that by such means it is possible to enforce proper health regulations. From many years observation in the former "crib" district, however, I maintain that under the old system here, there was practically as much evil scattered throughout the city as at the present time. Quack doctors thrived then as now, and I cannot see that the youth can be "saved" by putting the civic stamp of approval and protection upon prostitution.

"Closing the red light district has had the decided effect of putting a damper upon street walking. It is not to be denied

that there still exist isolated cases, but they are kept on the move through our ordinances and strenuous police work. During the fiscal year ending June 30th, 1912, the Police Department, including the Metropolitan Squad in charge of this branch of work, made 34,561 arrests. Of this number, 117 were for keeping houses of ill fame; 35 cases of adultery; 16,517 cases of drunkenness; 1,678 for disturbing the peace; 72, felony, and 2,757 for vagrancy. On account of the many sections of our vagrancy laws, it cannot be ascertained how many of these vagrancy cases were for prostitution, but it is safe to say perhaps that 50 per cent were from that cause. I can state authoritatively that since the abolition of the crib district, there has been less crime of a serious nature in this city."

It will be noted that during 1912, 117 arrests were made for keeping houses of ill fame, 35 for adultery and about 1378 for prostitution.

Here again conflicting testimony is presented, and our difficulty in arriving at a correct conclusion as to the value of suppression is made still more difficult.

It is quite evident that prostitution still exists in the city of Los Angeles, in spite of the fact that probably more strenuous efforts have been made to eradicate it than in any other city in the United States.

What can be said of the waste in lives, invalidism, and money?

Students of this problem have estimated that 450,000 young men in this country are infected every year, that 80 per cent of the deaths from inflammatory diseases peculiar to women, 75 per cent of all special surgical operations performed on women, and over 60 per cent of all the work done by specialists in diseases of women are the result of gonococcus infection.

"In addition, 50 per cent or more of these infected women are rendered absolutely and irremediably sterile.

"Fully 80 per cent of the ophthalmia which blots out the eyes of babies and 20 to 25 per cent of all blindness is due to gonococcus infection.

"Syphilis is transmitted to the offspring in full virulence. Its effect upon the product of conception is simply murderous. Sixty to 80 per cent of all infected children die before being born or come into the world with the mark of death upon them.

"The fact that these diseases constitute the most potent fac-

tor in the causation of blindness, deaf mutism, idiocy, insanity, paralysis, locomotor ataxia, and other incapacitating and incurable affections, imposes an enormous charge upon the State and community. Millions of dollars are contributed to the support of defectives, but not a dollar to the dissemination of the saving knowledge which might prevent."

Before venturing to prescribe a method of dealing with this problem, I desire to make my position absolutely clear on several points without retracting in any way what has already been said.

*First*—I believe in a single standard of purity based on continence, not on incontinence.

*Second*—I believe in working for a system of education on sex relations which will acquaint developing youths and maidens with a knowledge of the pathological results due to immoral practices.

*Third*—I believe in working for the complete eradication of the social evil, whether it be conducted openly in known houses of prostitution or secretly in assignation houses and private flats or in places disguised as tobacco or soft drink shops.

*Fourth*—I believe in working for the correction of social and economic conditions which are partially responsible for conditions as they exist today.

*Fifth*—Realizing, as we all must, that the ideal conditions outlined are difficult to bring about and that years must pass before they are obtained, I believe that the Health Problem created by the social evil should receive the same careful attention from the medical profession that is accorded other infectious disease problems.

Prophylaxis is not only the watchword in modern medicine, but its pride and glory. The debt owed our profession is not because of those we have cured, but because of those we have kept well; not because of emergencies met, but because of emergencies avoided.

Up to the present time, the deadly effects of gonorrhoea and syphilis have been overshadowed by the moral side of the question.

Illegitimate sexual congress with its deadly train of complications has not been considered a subject fit for discussion or one upon which the general public should be enlightened.

Would it not be better to bring it forth from the shadows

and place it naked before the world where the spot light of publicity can beat upon it?

While it is not to be expected that any plan will entirely remove the social evil, there is strong reasons for believing that many of its evil consequences can be avoided by education and prophylactic methods.

The fact that all of its evil results cannot be eliminated is no reason why an attempt should not be made to minimize them. The fact that venereal disease is contracted through an act of immorality, is no reason why the innocent victim of that immoral act should not be protected from the consequences of it.

The cause and method of transmission of venereal diseases is known. In Norfolk, Va., the army and navy have demonstrated the method of prevention to those exposed. Shall we sit quietly and dream of the millenium, or shall we accept man as he is and protect him and his future wife and children from the evil consequences of his immorality?

Medical inspection of prostitutes and the use of prophylactic means to avoid infection after contact will not prove to be a popular subject for discussion. It will not eliminate prostitution, but it does offer a partial remedy against its evil results. It is in harmony with what is being done to solve other infectious disease problems.

Until the time arrives when man shall be the master of his sexual instinct instead of its slave, our duty as sanitarians is as binding to protect him from the evil consequences of this slavery as it is to safeguard his food and water supplies; our moral responsibility to protect his wife and children, as great as if he exposed them to the plague.

While diverse opinions paralyze efforts directed to a sane solution of this problem, degeneracy is gaining a firmer hold on future generations. While we question one another's honesty or purpose, when our opinions differ as to what shall be done, the pit for our descendants is being made deeper and wider. What shall we do, act or theorize? Do the best we can with man as he is, or dream of ideal conditions impossible of attainment on this side of the grave?

Shall we build more hospitals, more insane asylums, more blind asylums and more penal institutions in which to house the victims of this problem while the seeds of moral suasion are being sown, cultivated and brought to full fruition in the dim

future, or shall we apply the same sanitary principals which have stayed the plague, eliminated yellow fever, stopped the spread of cholera, and rendered small pox less deadly than measles?

Shall we handle a sanitary problem by established sanitary methods or by a series of whereases and a ringing resolution?

Shall science be given a free hand, or shall the future be sacrificed to well intentioned emotionalism and hysteria?

Which shall it be?

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**United States Civil Service Examination. Chief Mine Surgeon (Male.) December 8, 1913.**—The United States Civil Service Commission announces an open competitive examination for chief mine surgeon, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Bureau of Mines, Pittsburgh, Pa., at a salary ranging from \$2,400 to \$3,600 per annum, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of the person appointed to fill this position will be to investigate and report upon health conditions in mines and at mining towns, to outline and direct methods of first aid instruction to miners, to attend mine disasters, and to direct and make pathological and physiological studies concerning the effect upon the human system of poisonous gases, death by shock at mines, and similar subjects.

Competitors will not be assembled for examination, but will be rated on the following subjects, which will have the relative weights indicated:

Subjects	Weights
1. General education and medical training.....	20
2. Experience as surgeon and physician to industrial workers.....	30
3. Postgraduate laboratory and hospital experience on pathological or physiological investigations .....	30
4. Publications or thesis on surgery and sanitation.....	20
Total .....	100

Graduation from a medical college of recognized standing and not less than three years' hospital experience among industrial workers are prerequisites for consideration for this position. Special credit will be given under subject 2 for experience in rendering or directing first aid to the injured and in the study of industrial occupational diseases.

Statements as to training, experience, and fitness, are accepted subject to verification.

Applicants must not have reached their fortieth birthday on the date of the examination.

This examination is open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for Form 304, and special form, to the United States Civil Service Commission, Washington, D. C.; the Secretary of the Board of Examiners, Post Office, Boston, Mass., Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Cal.; Customhouse, New York, N. Y., New Orleans, La., Honolulu, Hawaii; Old Customhouse, St. Louis, Mo.; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed and filed, in complete form, with the Commission at Washington prior to the hour of closing business on December 8, 1913. In applying for this examination the exact title as given at the head of this announcement should be used. Issued October 29, 1913.

## THE KINETIC SYSTEM

## THEORY

By GEORGE W. CRILE, M. D., Cleveland

## INTRODUCTION

This paper is an attempt to formulate a theory which it is hoped will serve to harmonize a large number of clinical and experimental data; to supply a key to an interpretation of a number of diseases; and to show a possible relation between many diverse causes that seem to produce the same end effects.

Even if the theory should prove ultimately to be true, it will meanwhile doubtless be subjected to many alterations. The specialized laboratory worker will at first fail to see the broader clinical view; and the trained clinician may hesitate to accept the laboratory findings. Our viewpoint has been gained from a consideration of both lines of evidence on rather a large scale. My associates and I are interested solely in arriving at the truth. We therefore welcome every criticism based either on a logical deduction from known clinical and experimental facts, or on new facts which are opposed to our theory.

The responsibility for the Kinetic Theory is assumed by myself, while my associates, Doctor J. B. Austin, Doctor H. G. Sloan, Doctor F. W. Hitchings and Doctor M. L. Menten share fully in the responsibility for the experimental data.

The self-preservation of man and kindred animals is effected through mechanisms which transform latent energy into kinetic energy to accomplish adaptive ends. Man appropriates from environment the energy he requires in the form of crude food which is refined by the *digestive system*; oxygen is taken to the blood and carbon dioxide is taken from the blood by the *respiratory system*; to and from the myriads of working cells of the body, food and oxygen and waste are carried by the *circulatory system*; the body is cleared of waste by the *urinary system*; procreation is accomplished through the *genital system*; but none of these systems are evolved *primarily* for the purpose of transforming potential energy into kinetic energy for specific ends. Each system transforms such amounts of potential into kinetic energy as are required to perform its specific work; but they do not transform latent into kinetic energy for the purposes of

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\*Paper read before the Experimental Section of The Cleveland Academy of Medicine, October 10, 1913.

escaping, fighting, pursuing; nor for combating infection. The stomach, the kidneys, the lungs, the heart strike no physical blow—their role is to do certain work to the end that the blow may be struck by another system evolved for that purpose. I propose to offer evidence that there is in the body a system evolved *primarily* for the transformation of latent energy into motion and into heat. This system I propose to designate *The Kinetic System*.

The kinetic system does not directly circulate the blood, nor does it exchange oxygen and carbon dioxide; nor does it perform the functions of digestion, urinary elimination, procreation; but though the kinetic system does not directly perform these functions, yet it does play indirectly an important role in each—just as the kinetic system itself is aided indirectly by all the other systems.

Among the organs in the kinetic system are the brain, the thyroid, the adrenals, the liver, the pancreas, and the muscles. The brain is the great central battery which drives the body; the thyroid governs the conditions favoring tissue oxidation; the adrenals govern immediate oxidation processes; and the muscles are the great converters of latent energy into motion and heat. The brain, the adrenals, the thyroid, the liver, and the pancreas may act either directly or indirectly, as our recent researches tend to show, (though the point is not yet proven) through other glands and tissues by causing changes in acidity and alkalinity; that is, the pancreas and the adrenals may so govern the acidity and the alkalinity as to facilitate or inhibit the conversion of energy. Our recent observations as to the effect of acidity and alkalinity on the brain cells correspond closely with the brain cell changes seen in animals in which the adrenals and the pancreas respectively are excised. Should this relationship be established its bearing on diabetes and acidosis is fundamental.

Adrenalin alone and thyroid extract alone and brain activity alone and muscular activity alone are capable of causing the body temperature to rise above normal. The functional activity of no other gland of the body alone, and the secretion of no other gland alone can cause a comparable rise in body temperature, that is, increase functional activity; and no active principle derived from the kidney, the liver, the stomach, the pancreas, the hypophysis, the parathyroid, the spleen, the intestines, the thymus, the lymphatic glands or the bones can, *per se*, cause a rise in



temperature comparable to the rise that may be caused by the activity of the brain, or the muscles, or by the injection of adrenalin or thyroid extract. Then too, when the brain, the thyroid, the adrenals, or the muscles are eliminated the power of the body to convert latent into kinetic energy is impaired or lost. I shall offer evidence tending to show that an excess of either internal or external environmental stimuli may modify one or more organs of the kinetic chain and that this modification may cause certain diseases. For example: alterations in the efficiency of the cerebral link yields neurasthenia, mania, dementia; of the thyroid link—Graves' disease, myxedema; of the adrenal link—Addison's disease, cardiovascular disease. It is possible also that the brain-adrenal-pancreatic-acid-alkali relation may prove to be a key to the causation of diabetes and of acidosis.

The amount of experimental data is so large that a monograph for its complete exposition is in process of preparation. This introduction may serve to give the line of argument.

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We will now consider briefly certain salient facts relating to the conversion of latent energy into kinetic energy as an adaptive reaction.

### ADAPTIVE VARIATION IN AMOUNT OF ENERGY STORED IN VARIOUS ANIMALS

From the physical forces of nature that constitute the environment, energy is appropriated. This energy is stored in the body in quantities in excess of the needs of the moment. In some animals this excess storage is much greater than in other animals. Those animals whose self-preservation is dependent on purely mechanical or chemical means of defense, such as the crustaceans, porcupines, skunks, cobras, have a relatively small amount of energy stored in their bodies. On the contrary, the more an animal is dependent on its muscular action for self-preservation the more surplus energy there is stored in its body.

### ADAPTIVE VARIATION IN THE RATE OF DISCHARGE OF ENERGY

What chance for survival would a skunk without odor, a cobra without venom, a turtle without carapace, or a porcupine

shorn of its barbs have in an environment of powerful and hostile carnivora? And yet in that hostile environment all sorts of unprotected animals survive by their muscular power of flight alone. It is evident that the provision for the storage of energy is not the only evolved characteristic which relates to the energy of the body. The more the self-preservation of the animal depends on motor activity, the greater is the range of *variation* in the rate of discharge of energy. The rate of energy discharge is especially high in animals evolved along the line of hunter and hunted, such as the carnivora and the herbivora of the great plains. For example, the grasses afford sustenance to vast numbers of deer, elk, eland, buffalo, and these grass eaters in turn give sustenance to a proportionate number of lions, tigers, leopards, and wolves. In the sea one finds remarkable examples of rate of variation in the energy discharge. Fish have far less shelter and cover than have many land animals and most fish, therefore, are both hunters and hunted. The basis of higher aquatic life, like the basis of higher terrestrial life is found in the lower forms of vegetable and animal life which are produced in the water in as vast numbers as on land. These low forms constitute the first round of the ladder leading from inorganic into organic life. The next rounds of organic life were built by the hunters in series—one fish preying on the other—until the swift and powerful master hunters were evolved. The self-preservation of both hunter and hunted is dependent on agility and speed, perhaps less than on endurance. Thus we find evolved the wonderfully dynamic trout and salmon—which have the power to rush up sheer water-falls to an incredible height. On the other hand the cuttlefish, which depends for its self-preservation upon its power to obscure its presence, and the sucker and the carp, which feed in muddy water, not frequented by great hunters, have developed a dynamic mechanism of relatively low speed.

One would expect, therefore, that animals whose motor mechanism is adapted to a discharge of energy at a low rate of speed only—would be more slowly exhausted than animals having high speed mechanisms. The low speed turtle—the crustaceans generally—cannot be exhausted rapidly. On the other hand, the high speed animals, such as the trout and spider monkey, are quickly exhausted.

In the evolution of dynamic mechanisms capable of many

rates of speed, one would expect to find the coincident development of powerful activators. We postulate that these activators are certain glands of internal secretion, for example, the thyroid, the adrenals, the brain; on this basis one would expect in different species that the thyroid, the adrenals, and the brain would vary in size with the dynamic force and with the total output of energy of the individual, and that the ratio of the weight of the ductless glands and brain to the body weight, exclusive of carapace, of the large turtles, or to the body weight of the huge dinosaur of the Mesozoic period would be lower than the ratio of the weight of the activating glands to the body weight of a spider monkey, a trout, or a man.

I postulate that these differences in the dynamics of various species are a result of general adaptation to environment.

### **INFLUENCES THAT CAUSE VARIATION OF SPEED OF OUTPUT OF ENERGY IN THE INDIVIDUAL**

Not only is there a variation in the rate of output of energy among various species of animals but one finds also variations in the rate of output of energy among individuals of the same species. If our thesis that man and animals are mechanisms responding to environmental stimuli is correct, and further, if the speed of energy output is due to changes in the activating organs as a result of adaptive stimulation, then we should expect to find physical changes in the activating glands during the cycles of increased activation. What are the facts? We have found that most animals have breeding seasons evolved as adaptations to the food supply and weather. Hence there is in most animals a mating season in advance of the season of maximum food supply so that the young may appear at the period when food is most abundant. In the springtime most birds and mammals mate and in the springtime at least one of the great activating glands is enlarged—the thyroid in animals and man shows seasonal enlargement. The effect of the increased activity is seen in the song, the courting, the fighting; in the quickened pulse and in a slightly raised temperature. Even more activation than that connected with the season is seen in the physical act of mating—when the thyroid is known to enlarge materially—this increased thyroid activity, as we shall show later, is probably no greater than the increased activity of other activating glands. In the mating season the kinetic activity is speeded up; in short, there

exists a state—a fleeting state of mild Graves' disease; in the early stages of Graves' disease, before the destructive phenomena are felt, the kinetic speed is high and life is on a sensuous edge. Not only is there a seasonal rhythm to the rate of flow of energy but there is a diurnal variation, the ebb is at night, and the full tide in the daytime.

We have seen that there are variations in speed in different species and that in the same species, speed varies with the season and with the time of day. In addition there are variations also in the speed of energy discharge in the various cycles of the life of the individual. The infant, the young, are evolved at high speed for growth, so that as soon as possible they may attain to their own power of self-defense. The young must adapt themselves to innumerable bacteria, to food, and to all the elements in their external environment. Against their gross enemies the young are abundantly protected by their parents; but the parents—except to a limited extent in the case of man—are unable to assist in the protection of the young against infectious disease.

The cycle of greatest kinetic energy for physiologic ends is the period of reproduction. In the female especially, there is a cycle of increasing activity just prior to her development into the procreative state. During this time secondary sexual characters are developed—the pelvis expands, the ovaries and the uterus grow rapidly, the mammary glands develop, et cetera. Again in this period of increasing speed in the expenditure of energy we find the thyroid also in rapid growth. Without the normal development of the ovary, the thyroid and the hypophysis, neither the male nor the female can develop the secondary sexual characters, nor do they develop sexual desire, nor show seasonal cycles of activity, nor can they procreate. This fact is one of the pillars of the mechanistic theory. This mechanistic pillar is doubled by the fact that the secondary sexual characters—sexual desire, fertility—may be developed at will, for example, by feeding thyroid products from alien species to the individual deprived of the thyroid. That is to say, the secretion of the thyroid of a sheep alone may develop the secondary sexual characters of a woman and may cause her to become childbearing. This is a mechanistic phenomenon of the first importance.

At the close of the childbearing period there is a permanent diminution of the speed of energy discharge, for energy is no longer needed as it was for the self-preservation of the offspring

before adolescence: and for the propagation of the species during the procreative period. Unless other factors intervene this reduction in speed is progressive until the mechanism itself is worn out. The diminished size of the thyroid of the aged bears testimony to the part the activating organs bear in the general decline.

We have now referred to variations in the rate of discharge of energy in different species; in individuals of the same species; in cycles in the same individual—such as the seasons of food supply; the periods of wakefulness and of sleep; the procreative period; and we have spoken of those variations caused artificially by thyroid feeding. We should say a word also regarding the racial variations—the result of racial adaptations to environment. Thus we find comparatively simple and adynamic reactions in the races that live amidst natural plenty, such as the natives in the tropical countries, where food is abundant throughout the year. In the temperate zone where food must be produced and stored, a greater number of reactions are required and greater energy must be expended. In their development these people became warlike and raided each others stores and fields. Fighting caused a constant succession of dynamic reactions, and resulted in the survival of the fittest individuals. Adaptations to the conditions under which food was produced and to war were probably the most potent factors in the evolution of the civilized man of today. The result of this evolution was the establishment of a race of men with a highly developed kinetic system.

In the foregoing we have considered the conversion for adaptive purposes of latent into kinetic energy in the form of motion: we will now consider the conversion for adaptive purposes of latent into kinetic energy in the form of heat. The question which arises at once is this—is there one mechanism for the conversion of latent energy into heat and another mechanism for its conversion into motion? The mechanism for the conversion of latent energy into motion is the “brain—muscular apparatus.” Does the brain-muscular mechanism convert latent energy into heat? Is there a separate mechanism for the production of fever associated with peritonitis, another for rheumatism, another for emotional fever, and another for anaphylaxis—or is there one mechanism which is played upon by all of these because developed as an adaptive response to their recurrent stimuli?

## THE MECHANISM OF HEAT PRODUCTION

We have discussed the rate of discharge of energy with special reference to various forms of motor and emotional activity. We will now consider it from the viewpoint of its conversion into heat as an adaptive response. We must first recognize the fact that in the production of motion there is always a by-production of heat. That this form of heat production is not a useful adaptation may be inferred from the fact that a mechanism for heat elimination is stimulated simultaneously with the initiation of the motor activity. The capillaries of the skin are distended so that an increased blood supply to the external parts of the body may increase the radiation of heat; the mechanism for sweat production is stimulated that evaporation may rapidly diminish the body heat.

Heat production as a by-product of motor activity is not the type of heat production we wish now to discuss. We are now concerned with heat production as a part of an adaptation against infection. The presence in the body of any alien proteid causes heat production. Before the day of the hypodermic and of experimental medicine, the principal foreign proteids found in the body were brought by invading microorganisms and the body therefore was forced to evolve a means for the destruction of these hostile organisms. Bacteriologists have taught us that bacteria grow best at the normal temperature of the body, and elsewhere we have observed that the advantage of the production of heat in the cure of bacterial infection is in the fact that a temperature higher than the optimum temperature for the growth of bacteria may hinder their growth or even may kill them.

In the pyogenic infections that are overcome without pus formation there is a rapid rise in the temperature for about three days, then a fall for two or three days, so that the cycle is completed in about a week. If the infection goes on to localized pus formation, then the temperature continues with morning remissions until the abscess is discharged and drainage established, after which the daily evening rise falls progressively until a normal temperature is regained.

Our present inquiry relates to the origin of the fever and to the mechanism of its production. We postulate that the same mechanism that produces muscular activity is the mechanism that produces fever. Muscular activity is produced by the con-

version of latent energy into motion, and fever is produced largely in the muscles by the conversion of latent energy into heat without motion.

## HISTOLOGIC CHANGES IN THE BRAIN CELLS IN RELATION TO FEVER

We have studied the brain cells in human cases of fever, and in animals after the injection of the toxins of gonococci, of streptococci, of staphylococci, of colon bacilli, of tetanus bacilli, of diphtheria, of typhoid bacilli, of foreign proteids; after the injection of indol and skatol, of leucin and of peptones. In all cases of these observations the brain cell changes were precisely the same as those seen after muscular exertion. The brain cell changes wrought by infection could not be distinguished from the changes wrought by ordinary physical work; by emotional excitation; by physical injury; or by exhaustion from over doses of strichnin. Every influence that caused brain cell changes caused either muscular work or fever. We were forced to conclude that the brain cell changes associated with infection represented "work" changes. What work? We postulate it was the work of converting stored energy into heat through activation of the muscles, just as the brain causes the conversion of energy in the muscles into motion; a fact which is proved by the physical alteration of the brain cells as a result of intense activation. It has chanced that certain other studies have given an analagous and most convincing proof of this postulate. In the electric fish a part of the muscular mechanism is replaced by a specialized structure for storing and discharging electricity. We found "work" changes in the brain cells of electric fish after all their electricity had been rapidly discharged. Electricity is a form of energy and is of course convertible into heat. If the formation and discharge of electricity is attended by "work" changes in the brain cells, we should expect to find "work" changes in the brain cells as a result of the conversion of energy into heat. We found further that electric fish could not discharge their electricity when under anesthesia, and clinically we know that under deep morphia narcosis, and under anesthesia, the production of fever is hindered. The action of morphia in lessening the fever production is probably through its depressing influence on the brain cells, thus causing a diminished activity. We found

by experiment that under deep morphinization brain cell changes due to toxins could be largely prevented; in patients deep morphinization diminished the production of fever. The fact that morphia controls the brain cell changes due to infections is in agreement with the clinical observation that morphia diminishes the production of both heat and motion. This effect of morphia strengthens the postulate that the brain cell changes wrought by infection are "work" changes, and is a strong proof that the brain cells are active participants in the production of fever. The contribution of the brain cells to fever production is either by the direct conversion of their stored energy into heat, or by the conversion of their latent energy into electricity or a similar force, which in turn stimulates the glands and muscles to heat-producing activity. A further support to the postulate that the brain cells use their energy in the production of fever by sending impulses to the muscles is found in the effect of muscular exertion, or of other forms of motor stimulation in the presence of a fever-producing infection. Under such circumstances muscular exertion causes additional fever and causes also added but identical changes in the brain cells. Thyroid extract and iodine have the same effect as muscular exertion in the production of fever and the production of brain cell changes. All of this evidence is a strong argument in favor of the theory that certain parts of the brain cell substance are consumed as a result of the work performed by the brain in the production of fever. That the stimulation of the brain cells *without accompanying activity of the skeletal muscles* and *without infection* can produce fever is proven: (a) by numerous experiments in which animals were subjected to fear without any exertion of the skeletal muscles, and high fever was produced: (b) by observing the rise in temperature in the anxious friends of patients during operations on the patient: (c) by noting the rise of temperature caused by the mere anticipation of a surgical operation. In a rabbit under the excitation of fear alone the production of temperature was always accompanied by the production of characteristic "work" changes in the brain cells, and these changes in the brain cells were identical with the changes seen in the production of fever: (d) there are innumerable clinical observations as to the effect of emotional excitation on the existing temperature of patients. A degree or more of added fever is a common result of a visit from a tactless friend. There is a traditional Sunday increase of



temperature in hospital wards. Now the visitor does not bring and administer more infection to the patient to cause this rise, and the rise of temperature occurs even if the patient does not make the least muscular exertion as a result of the visit.

If the brain contributes to the production of heat is that contribution due to the direct conversion of latent energy into heat, or does the brain produce heat principally by converting its own latent energy into electricity or some similar power of energy which, through nerve connections, stimulates other organs and tissues in turn to convert their stores of latent energy into heat?

According to Starling, when the connection between the brain and the muscles of an animal is severed by curare, by anesthetics, by division of the cord and nerves, then the heat-producing power of the muscles so modified is on a level with those of cold blooded animals. With cold the temperature falls, with heat it rises. The body of an animal so modified has no more control in the muscles involved over the conversion of latent energy into heat than it has over the conversion of latent energy into motion. Therefore, we must conclude that heat production is directly under the control of the brain, but of course it does not take place in the brain.

We shall now present first negative and then positive evidence of the postulate that the brain sends out impulses to distant organs which cause them to generate heat; and evidence also of the corollaries of this postulate: (a) that impairment of these organs lessens or eliminates the production of both heat and motion, and (b) that the increased activity of these glands increases motion and heat production.

**EFFECT UPON HEAT PRODUCTION OF IMPAIRED  
OR LOST FUNCTION OF: (a) THE MUSCLES;  
(b) THE BRAIN; (c) THE ADRENALS;  
(d) THE THYROID**

(a) *The Muscles*: It has clinically been observed that if the muscles are impaired by great disuse, or by a disease such as myasthenia gravis, then the range of production of both heat and motion is below normal.

(b) *The Brain: Cerebral Softening*: In cerebral softening we may find all the organs of the body comparatively healthy ex-

cepting the brain. As the brain is physically impaired it cannot normally stimulate other organs to the conversion of latent energy into heat or into motion. Hence we find that in patients with cerebral softening, infections such as pneumonia show a lower temperature range than in patients whose brains at the onset of pneumonia are normal.

(c) *The Adrenals*: In such destructive lesions of the adrenal glands as Addison's disease one of the cardinal symptoms is a sub-normal temperature and impaired muscular power. Animals on whom double adrenalectomy has been performed show a striking fall in temperature. Adrenalectomy is followed immediately by asthenia, fall in temperature and *chromatolysis*. The significance of the latter will be pointed out later.

(d) *The Thyroid*: In myxedema one of the cardinal symptoms is a persistently sub-normal temperature, and though prone to infection, subjects of myxedema show but feeble febrile response and feeble muscular power. This clinical observation is strikingly confirmed by laboratory observations; normal rabbits subjected to fear showed a rise in temperature of from one to three degrees, while two rabbits whose thyroids had been previously removed, and who had then been subjected to fright showed much less febrile response.

### EFFECT UPON HEAT PRODUCTION OF INCREASED ACTIVITY OF THE LINKS OF THE KINETIC SYSTEM

(a) *The Muscles*: After a high fever the muscles show a marked impairment in their power to produce motion. We know also that muscular action causes increased temperature. In a Marathon race, the temperature may rise two degrees, and at the end of a heat the race horse may show two to three degrees of fever.

The type of nerve stimulus which causes muscular contraction and of the nerve stimulus which causes fever could not of course be identical, and we have no conjecture as to what constitutes the difference. The facts, therefore, are significant that when muscular energy is being converted into heat in the course of a fever, there is inhibition of motion, and that curare and anesthetics diminish or abolish the production of both heat and motion.

(b) *The Adrenals*: The evidence as to the adrenal influence on fever is more direct. The administration of large doses of adrenalin of itself produces fever. Adrenalin alone causes increased activity of the brain as is proved by the hyperchromatism followed by chromatolysis which follows intravenous injections of adrenalin. Cannon has shown that animals subjected to intense emotional stimulation such as rage and fear, show an increased amount of adrenalin in the blood, and glycogen in the blood and urine. Toxins and foreign proteids cause an increased output of adrenalin; but there is no increase in the output of adrenalin in animals in which the nerve supply to the adrenals has been previously divided, and which have been then subjected to strong emotional stimulation or to the administration of toxins or foreign proteids.

The significance of this point should not be overlooked, because adrenalin alone performs every function that is performed by the autonomic nervous system, excepting one. Adrenalin raises the blood pressure; stimulates and slows the heart; governs the output of glycogen by the liver; inhibits the intestinal contractions; widens the alveoli of the lungs; increases the oxygen consumption of the muscles; dilates the pupil; causes uterine contractions; erects the hair and causes sweating. The only function performed by the autonomic nervous system that cannot be performed by adrenalin alone is the stimulation of the adrenal gland to greater activity. This exception one would expect, as adrenalin must be neutral to the adrenal gland; stimulation of the adrenal gland by adrenalin might be compared to one's "lifting himself by his own boot-straps." We conclude then that the brain drives the adrenal glands and the adrenal secretion in turn drives the autonomic nervous system, and that the activity of the autonomic nervous system causes many of the leading phenomena seen in muscular activity, in emotion and in fevers.

(c) *The Thyroid*: The thyroid plays an obvious role in the production of fever. This is evidenced by the fever which is the result of the administration of thyroid extract in large doses. In the hyper-activity of the thyroid in exophthalmic goitre one sees a marked tendency to fever; in severe cases there is daily fever. In fact, in Graves' disease we have displayed in an extraordinary degree an exaggeration of the whole action of the kinetic mechanism.

We have stated that in acute Graves' disease there is a tendency to the production of fever—spontaneous fever—a diurnal variation—a magnified diurnal variation in temperature which is due to an increased output of energy in even the normal reactions producing consciousness. In Graves' disease there is therefore a state of intensified consciousness, this intensified consciousness being associated with low brain thresholds to all stimuli—to stimuli that cause muscular action and to stimuli that cause fever. The intensity of the kinetic discharge is seen in the constant fine tremor. It is evident that the thresholds of the brain have been sensitized by something. In this hypersensitization we find the following strong evidence as to the identity of the mechanisms for the production of fever. In the state of superlative sensitization which is seen in Graves' disease we find that the stimuli that produce muscular movement, the stimuli that produce emotional phenomena and the stimuli that produce fever are as nearly as can be ascertained equally effective. Clinical evidence regarding this point is abundant, for in patients with Graves' disease we find that the three types of conversion of energy resulting from emotional stimulation, from nociceptor stimulation (pain) and from infection stimulation are as nearly as can be judged—equally exaggerated. In the acute cases of Graves' disease the explosive conversion of latent energy into heat and motion is unexcelled by any other known normal or pathologic phenomena. Here we have the crux of the kinetic mechanism. Excessive thyroid *secretion*, as in thyrotoxicosis from functioning adenomata, and excessive thyroid *feeding*, cause all the phenomena of Graves' disease, except the exophthalmos and the emotional facies. On the contrary, if there is thyroid deficiency there is the opposite state—a reptilian cold-blooded sluggishness.

At will, then, through normal, diminished or excessive administration of thyroid secretion, we may produce an adynamic, a normal or an excessively dynamic state. By thyroid influence, the brain thresholds are lowered and life becomes exquisite; without its influence the brain becomes a globe of sluggish colloidal substance. In a large series of experiments on animals and of observations on human brains, we have been able to show that brain cell changes are found—uniformly found—whenever latent energy has been converted into heat or motion, and with certain exceptions we found the same influence caused an increased output of adrenalin.

DO THE BRAIN, THE THYROID, THE PANCREAS,  
THE LIVER, AND THE ADRENAL COOPERATE  
IN THE CONVERSION OF ENERGY?

In my laboratory a large number of brains have been examined, many adrenalin experiments have been made upon animals and clinical evidence has been sought for in thousands of patients. The results of these findings may be summarized as follows: In the conversion of energy as an adaptive response to traumatism, to infection, to foreign proteids, to indol and skatol, to leucin, to peptones, to adrenalin, to strychnin, to emotion, to anaphylaxis, in short to every known type of adequate stimulus, the brain and the adrenals responded as follows:

*Brain:* In every instance the brain cells showed unmistakable work phenomena, viz., at first a stage of hyperchromatism followed later by chromatolysis, and the cells then passed through the cycle of enlargement, diminution, and secondary swelling. If the stimulation was sufficient, they finally burst their nucleolar and limiting membranes and passed on to the stage of final disintegration. So far as could be observed the physical changes were the same, however energy had been expended, whether in running, in fighting, in copulating or in convulsions; whether in overcoming infections, or in casting off foreign proteids and the products of auto-intoxication. Whatever the excitant, the brain cells without exception displayed identical changes.

*Adrenals:* Is increased adrenal activity an accompaniment of increased brain cell activity? In our experiments with a single exception every adequate stimulus of the brain caused increased adrenal activity—that exception being traumatism under anesthesia. All the other stimuli even when applied under anesthesia caused increased adrenal activity. If however, the major splanchnic nerves were first divided or if the adrenals were excised and then a foreign proteid or an emotional excitant was given, adrenal activity was not increased. In addition if the animal was deeply narcotized with morphia before the administration of a foreign proteid or a toxin, there was no increased output of adrenalin.

Of especial interest is the fact that under deep morphia narcotization not only the adrenals but the *brain cells also were markedly protected against the proteid, toxic and infection stimuli.*

Anaphylaxis showed brain cell changes and increased adrenalin output, while both the brain cell changes and the adrenalin output were controlled to a large extent by previous heavy morphia narcotization. In anaphylaxis also there was no increased adrenalin output, when the adrenal nerve supply had been previously divided.

Strychnin caused brain cell changes and a marked increase in adrenal activity, while narcotics and anesthetics caused neither brain cell changes nor increased adrenalin output.

The kinetic theory offers an explanation of the brain cell changes; it identifies them as work phenomena and explains why identical brain cell changes and increased adrenalin output are seen as a result of diversified causes.

*Thyroid:* The brain cells and the adrenal glands are securely concealed from the eye of the clinician—hence the changes produced in them by different causes escape his notice—but the thyroid has always been closely scrutinized by him. The clinician knows that every one of the above mentioned causes of increased brain cell activity may cause an increase in the activity of both the normal or the enlarged thyroid; and he knows only too well that in a given case of exophthalmic goitre, the same stimuli which excite the brain and the adrenals to increased activity will also aggravate this disease.

*Muscles:* The role of the muscular system has always been obvious, as through the muscular system is produced most of the motion and heat of the body.

There may be other glands that might fittingly be included in the kinetic system, but in later communications which will deal with the play of other glands upon the kinetic chain, at least some of these will find a logical place. As already stated the data on which these statements are based is so extensive that they will be soon published in a monograph.

From this large amount of evidence from the laboratory and from the clinic we believe we are justified in associating the brain, the adrenal and the thyroid and the muscles as vital links in the kinetic chain.

### KINETIC DISEASES

In the foregoing conclusions, we find a simple explanation of certain diseases. When the kinetic system is driven at an overwhelming rate of speed—as by severe physical injury; by

intense emotional excitation; by perforation of the intestines; by the pointing of an abscess into new territory; by the sudden onset of an infectious disease; by an overdose of strychnia; by a Marathon race; by a grilling fight; by foreign proteids; by anaphylaxis—the result of these acute overwhelming activations of the kinetic system is clinically designated shock, and according to the cause is called traumatic shock, toxic shock, anaphylactic shock, drug shock, et cetera.

The essential pathology of shock is identical whatever the cause. If however, instead of an intense overwhelming activation, the kinetic system is continuously or intermittently overstimulated through a considerable period of time, as long as each of the links in the kinetic chain takes the strain equally the result will be excessive energy conversion, excessive work done; but usually under stress some one link in the chain will be unable to take the strain and then the evenly balanced work of the several organs of the kinetic system is disturbed. If the brain cannot endure the strain, then neurasthenia, nerve exhaustion, or even insanity will follow. If the thyroid cannot endure the strain it undergoes hyperplasia which in turn may result in a colloid goitre or in exophthalmic goitre. If the adrenal cannot endure the strain, cardiovascular disease or glycosuria may develop.

Identical physical and functional changes in the organs of the kinetic system may result from intense continued stimulation from any of the following causes: excessive physical labor; athletic exercise; worry or anxiety; intestinal auto-intoxication; chronic infections such as oral sepsis, tonsilitis and adenoids; chronic appendicitis, chronic cholecystitis, colitis and skin infections; the excessive intake of proteid food (foreign proteid reaction); emotional strain; pregnancy; stress of business or professional life—all of which are known to be activators of the kinetic system.

From the foregoing we are able to understand the muscular weakness following fever; we can understand why the senile have neither muscular power nor strong febrile reaction; why long continued infections produce pathologic changes in the organs constituting the kinetic chain; why the same pathologic changes result from various forms of activation of the kinetic system. In this hypothesis we find a reason why cardiovascular disease may be caused by chronic infection, by auto-intoxication,

by overwork, or by emotional excitation. We now see that the reason why we find so much difficulty in differentiating the numerous acute infections from each other is because they play upon the same kinetic chain. Our postulate harmonizes the pathological democracy of the kinetic organs, for it explains not only why in many diseases the pathological changes in these organs are identical, but why the same changes are seen as the result of emotional strain and overwork. We can thus understand how either emotional strain or acute or chronic infections may cause either exophthalmic goitre or cardiovascular disease; how chronic intestinal stasis with the resultant absorption of toxins may cause cardiovascular disease, neurasthenia, or goitre. Here is found an explanation of the phenomena of shock—whether the shock be the result of toxins; of infection; of foreign proteids; of anaphylaxis or of psychic stimuli, or of a surgical operation with its combination of both psychic and traumatic elements.

This conception of the kinetic system has stood a crucial clinical test by making possible the shockless surgical operation. It has offered a plausible explanation of the cause and the treatment of Graves' disease. Will this kinetic theory stand also the clinical test of controlling that protean disease bred in the midst of the stress of our present day life? Present day life in which one must ever have one hand on the sword and the other on the throttle, is a constant stimulus of the kinetic system. The force of these kinetic stimuli may be lessened at the cerebral link by intelligent control—a protective control is empirically attained by many of the most successful men. The force of the kinetic stimula may be broken at the thyroid link by dividing the nerve supply, by reducing the blood supply, or by partial excision; or if the adrenals feel the strain, the stimulating force may be broken by dividing their nerve supply or by the partial or complete excision of one gland. No theory is worth more than its yield in practice, but already the straw of clinical evidence from a single case points toward a new method of control of cardiovascular disease. We have proved that animals remain in apparently good health after the division of their adrenal nerve supply and in one human patient with one type of cardiovascular disease in whom the adrenal nerve supply was divided and a portion of one adrenal removed the blood pressure gradually fell and remained at a lower level than prior to the operation. As it stands alone, however, this case proves nothing.



## CONCLUSION

Animals are transformers of energy. Adaptation to environment is made by means of a system of organs evolved for the purpose of converting potential energy into heat and motion. The principal organs of this system are the brain, the thyroid, the adrenals and the muscles. Any change in any link of the kinetic chain modifies proportionately the entire kinetic system.

There may result an immediate breakdown—acute shock—or else the gradual modification of one or more of the kinetic organs may give rise to a number of diseases.

This theory has already given us the shockless operation and it opens a possibility of controlling certain chronic diseases of that intensely kinetic organism—civilized man.

**Medical Advertising and the New Orleans Item.**—For years *The Journal* has maintained that practically all “patent medicine” advertising is fraudulent. This claim has been denied with various degrees of insistence by those interested directly or indirectly in the “patent medicine” business. The “patent medicine” men themselves have, of course, been the most outspoken in their denunciation of *The Journal's* attitude in this matter and, in their attempt to offset the damaging proofs which have been submitted, have accused some of the officers of the Association of practically every crime in the calendar. Moreover, they have not hesitated to purchase those publications whose editorial pages were for sale for the purpose of directing a flood of verbal sewage against those responsible for *The Journal's* policy. Less virulent, if not less dangerous to the public, were those newspapers that offered in their advertising pages a welcome haven to the “patent medicine” frauds and quacks. Even conservative and decent newspapers have held that *The Journal's* attitude in this matter was extreme to the point of fanaticism. Nevertheless, *The Journal's* propaganda is having its effect. One by one newspapers of the better class are adopting *The Journal's* attitude toward the fraudulent “patent medicine.” One of the latest of the great papers of the country to do this is the *New Orleans Item*, which, on October 1, put into effect a new set of rules governing the acceptance of medical advertising “copy” to its pages. These rules are reproduced in full in the Propaganda Department of this issue. They are worth reading. The *Item* has had this step under consideration for some months and enlisted the help of *The Journal* staff for suggestions, regarding the rules it finally adopted. While the *Item*, under its new rules, will not reject all “patent medicine” advertising, it will reject both such as is plainly fraudulent and also such as it may find reasonable grounds to suspect after subjecting it to a most rigid scrutiny. As to the effect that these rules will have on the medical advertising previously carried by the *Item*, this is excellently expressed in a letter recently received from the managing editor. He writes: “Practically the whole business will go out on October 1. I am frank to say that I did not know how bad it was until I had it collected and began to look at it in a critical way.” Yet it should be borne in mind that the *New Orleans Item* was no worse—in fact a great deal better—than many of the large metropolitan dailies. The admission, then, that under its new rules practically the whole business of medical advertising will go out is a sermon in itself. The rules, while excellent, are in no sense extreme. If their enforcement causes the rejection of practically all medical advertising copy, then the “patent medicine” business is all that *The Journal* has ever said it was—and more.

—J. A. M. A.

## LABORATORY STUDIES OF THE ACTIVITY OF THE BRAIN AND THE ADRENALS IN RESPONSE TO SPECIFIC STIMULI

By F. W. HITCHINGS, M. D., H. G. SLOAN, M. D., and J. B.  
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### STUDIES IN THE ACTIVITY OF THE ADRENAL GLAND

The adrenal glands play an important part in their relation to the other members of the kinetic system. The experiments undertaken in Doctor Crile's laboratory have been directed particularly toward ascertaining some of the conditions which activate the adrenal glands, and hence more exactly determining this relation.

The method of testing adrenal activity which was used was that originated by Cannon. In regard to this test, it may be at once said that while it has been criticized, and while, like any other test depending on physiologic activity, a certain percentage of error is unavoidable, it is felt that the conclusions derived from sixty-six experiments are so far consistent as to be dependable within a small percentage of error.

The test depends on two facts: the first is that epinephrin inhibits the activity of smooth muscle fibres of the intestines; the second is that epinephrin is a readily oxidizable substance. In the application of these two facts three tests were made in each experiment.

Using a segment of the small intestine of a urethanized rabbit which is contracting rhythmically in warm oxygenized blood and recording its contractions on a smoked drum, blood from the animal under experiment is tested as a control. If the intestine continues to write the assumption is that the blood contains no epinephrin. The animal is then given, for example, a bacterial toxin, and a double amount of blood is taken as soon as the toxin has produced its effects. Part of this blood is used for the epinephrin test. If no inhibition of the intestine be produced the experiment ends at this point. If it be produced the second portion of blood is allowed to stand for 25 minutes in order to allow the epinephrin to oxidize, and then the third, or oxidization test is made. If the oxidization test be negative the assumption is that the substance that caused the inhibition was

oxidizable and epinephrin is the only oxidizable substance in the body that produces inhibition of the intestine which can be oxidized in 25 minutes. If, on the other hand, a second inhibition be obtained the chances are that the agent used is still present in the blood in sufficient amount to cause it directly.

In a typical experiment with the control test negative, the toxin test positive, and the oxidation test negative, the assumption is that the toxin, or whatever other activator was used, caused the injection into the blood of epinephrin from the adrenal glands. What proof is there that this substance actually is epinephrin?

Let us suppose that an agent be used which has always caused consistent epinephrin reaction as interpreted by these three results—e. g., peptone, (Witte). It has been found that *when all other conditions of the experiment are the same*, the epinephrin production caused by peptone is prevented by blocking the adrenal nerves, whether this be done by severing the splanchnic nerves (major and minor); by blocking them with a local anesthetic; by cutting under and around the glands but leaving the adrenal vein intact; by clamping off the glands, and finally, by removing the glands altogether. It has also been found that with the glands left intact large doses of morphia will also prevent the epinephrin reaction.

All of these manoeuvres have been repeatedly tried and have infallibly prevented inhibition. This leaves little room for argument as regards what the splanchnic nerves do or do not do besides activating the adrenal glands, and even if consistent results had not been obtained, removal of the glands altogether should be considered as final proof. If all other features of the experiments remain the same, while in some the nerve or blood supply of the adrenal glands is interfered with or the glands removed, and in others there is no interference with innervation or blood supply; then if in the first instance no inhibition is produced, the inhibition produced in the second instance must be due to an added secretion.

Activation of the adrenal glands may be caused, not only by strychnin, toxins, et cetera, but by fear. This latter phase of the subject will be discussed.

Substances with which we have experimented have included the toxins of gonococci, of streptococci, of staphylococci, of colon bacilli, of tetanus bacilli, of diphtheria, foreign proteids,

indol and skatol, leucin, creatin, feces extract, strychnin, morphia, carbolic acid, Witte's peptone, sheep serum, ox serum, kitten serum. All of these have seemed to cause adrenal activation, and from their use sixty-one out of sixty-six consistent experiments can be reported. Of these sixty-six experiments, seventeen were done with interference with the adrenal output, and hence there was no resulting inhibition.

Narcotics and anesthetics caused no increased output of adrenalin. The psychic strain of inducing anesthesia usually caused epinephrin output, and in consequence it was always necessary to wait 25 minutes before testing the control blood.

### CONCLUSIONS

1. When checked by a previous control test and a subsequent oxidation test Cannon's physiologic test for epinephrin has proved efficient.

2. As a corollary of the experiments in which the splanchnic nerves were cut it is evident that the epinephrin-activating agent (drug, toxin, or psychic agent), acted through the central nervous system rather than directly or through a hormone.

3. The various agents which caused increased epinephrin output caused either fever or motor activity.

4. The agents which caused no increased epinephrin output, or which diminished it, are either neutral as to motion and fever or diminish them.

### THE INFLUENCE OF MAJOR FEAR AND RAGE IN A CAT ON EPINEPHRIN OUTPUT

Under local anesthesia and nitrous oxide a ureteral catheter was introduced into the femoral vein of a cat to a point just past the entrance of the adrenal vein into the vena cava. Blood was then withdrawn and tested for epinephrin; if negative the cat was subjected to a seance of great rage and fear by having a muzzled dog try to fight with it. This of course produced no injury to the cat, but threw it into strong emotion. After fifteen to twenty minutes of such emotion, blood was withdrawn from precisely the same point that it had been drawn from the first time, and like the first specimen was tested for epinephrin.

It was found that there was an epinephrin reaction only after a heavy emotional stress. Granting that the reaction is an

epinephrin reaction, does the fear and rage activation of the adrenal gland go directly through the nerve connection between the brain and the adrenal, or is it indirectly through a hormone action? To test this point the following experiments were made:

The adrenal supply of cats was interrupted by dividing the major splanchnic nerves on both sides. Then after several minutes, when the cats were otherwise entirely normal they were again subjected to intense emotion, rage and fear produced as before. There was no epinephrin reaction in any animal in which bilateral division of the splanchnic nerves existed at the time of the experiments—that is to say, in the first experiments the adrenal gland must have been activated directly through the brain.

What effect has morphia upon the normal output of epinephrin? First of all the normal output of epinephrin was tested by taking the blood directly from the adrenal vein. The epinephrin test was then made with the animal under deep morphia narcotization. Apparently the epinephrin output was distinctly diminished in the latter case.

## THE BRAIN

I shall attempt to give but a brief outline of some of the changes in the Nissl substance of the Purkinje cells of the cerebellum in the experiments described by the preceding speakers, and in certain other conditions not spoken of by them. This article deals only with one change observed in cells affected by various stimuli. Other changes such as eccentricity of the nucleus and, of greatest importance, changes in the relation of the size of the nucleus to the cell have not been gone into in detail.

The important point brought out in this investigation is the fact that these changes occur in uniform cycles and that they are always produced in the same manner by a number of different stimuli. The severity of the effect varies in different parts of the central nervous system, being easier to produce and more marked in the higher centers than in the cord. We have elsewhere published the arbitrary classification of these changes in ten stages in order that there might be a quantitative basis for comparative studies, but for the purpose of this paper we have classified the cells in Hyperchromatic, Active, Fatigued, and Exhausted, stages only. One of the striking facts is the rapid production, in many cases of a hyperchromatic condition. With the

return to normal conditions this hyperchromatism gradually disappears in from four to five hours, but if the stimulus has been extreme and long continued, the hyperchromatic stage does not last long and most of the cells will be found in the so-called fatigued state. If the stimulus persists the cells go on to the exhausted state. It is supposed that in the final stage there has been such a severe change in the nucleolus that the cell is practically dead and there is direct microscopical evidence that the cell remains are carried away.

We have made over six hundred microscopical studies upon the brains of man and of animals subjected to various normal and pathological influences such as physical exertion, fighting, fear, traumatism and the administration of anesthetics, thyroid extract, adrenalin, strychnin, bromides, morphin, nicotin, acids, alkalis, foreign proteids, indol, skatol, leucin, the toxins of colon bacilli, streptococci, staphylococci, diphtheria and gonococci; we have made observations also upon animals on which adrenalectomies and thyroidectomies were made; upon animals subjected to insomnia as well as upon animals given prolonged nitrous oxide or ether anesthesia. We examined the brains of animals which were deeply morphinized before the administration of toxins. We examined also the brains of animals to which had been given toxins and strychnin while under various forms of anesthesia; the brains of animals to which had been given strychnin while under various forms of anesthesia plus curare and the brains of animals from which the pancreas had been removed.

This extensive series of observations extended over a period of four years. As a control normal brains were used as a basis for comparison. The majority of brains were studied by number and the results recorded before the other data of the experiments were known. The brains of animals which had been affected by certain agents were never found in the normal condition. Our studies included not only the structure of the cell, but its size; the relation of the nucleus to the cell; the condition of the nucleolar and the cell membranes; the gross size of the cell; the stainability of the cell according to Nissl's method. In addition to this the final result of the study of the cell was not reached until more than 40,000 cells had been counted and classified. Whatever the cause of the changes in the brain cells, it was found that the cortex and the cerebellum showed more marked changes than did the base of the brain and the cord.

Large quantities of material are now preserved for corroborative study and numerous laboratory slides are preserved for the instruction of anyone who is interested in the evidence here presented. We have found also that the injection of adrenalin alone causes hyperchromatism, followed by chromatolysis.

Of great significance is the fact that all the agents that produced an increase of adrenalin output cause also a hyperchromatism of the brain followed by exhaustion. It mattered not whether this stimulating agent was a physical exertion in running, in fighting or in convulsions; or whether it was the emotion of fear, or of anger; or a reaction to anaphylaxis, to toxins, to indol, skatol, foreign proteids, or strychnin—in every case hyperchromatism and increase of adrenalin output went hand in hand.

All of these studies were of course performed as a co-ordinated part of the general laboratory research and of clinical observations in the hospital.

### EMOTIONAL STIMULI—FEAR IN RABBITS

If the brain of a rabbit is examined after being severely frightened by a muzzled dog, the cells are not found in the fatigued state as would be indicated by a decrease of chromatin, but on the contrary, the chromatin is greatly increased in amount, there being relatively ten per cent more hyperchromatic cells than in an average normal rabbit. If the animal is allowed to live five or six hours after the fright and the brain is then examined, the hyperchromatism has disappeared and most of the cells are in a stage of fatigue and contain much less chromatin than do the average normal cells. Animals that were frightened daily for three weeks showed no hyperchromatic cells, but on the other hand, they did not exhibit any marked increase in the number of exhausted cells.

### ELECTRIC FISH

The brain cells of a number of apparently normal electric fish, i. e., those that had produced only a slight discharge of electrical energy, were stained by parallel technique and were compared with the cells of animals whose discharge had been repeated until its electrical energy had been totally exhausted. The cells of the normal fish were active and hyperchromatic in general while those of the electrically exhausted animal were all in a fatigued condition.

## SALMON FROM THE OCEAN AND SPAWNING GROUND

Brain cells from salmon caught in the ocean were compared with cells from salmon taken from up the Columbia river at the time of their return to fresh water for the spawning season. In the former case the brain cells stained intensely and contained considerable chromatin, while the brain cells from the exhausted salmon stained with difficulty and were in a badly fatigued and exhausted state.

### INSOMNIA EXPERIMENTS

Rabbits kept awake for 109 hours showed great loss of chromatin. There was no hyperchromatic state present, all the cells being in the fatigued or exhausted states—14 per cent in the latter. If the animals were allowed six hours normal sleep, some of the cells returned to the hyperchromatic state but the same percentage of exhausted cells remained—14 per cent. Nitrous oxide and oxygen did not benefit the condition of the cells as did normal sleep. Those rabbits given nitrous oxide and oxygen intermittently for one hour out of every six showed a marked hyperchromatic state and less exhausted cells than did rabbits kept continuously awake.

### ANAPHYLAXIS

In one-half hour after the production of anaphylaxis by the injection of a foreign proteid the Purkinje cells of the rabbit were all in a fatigued state. If the animal had previously been deeply narcotized with morphin the cells remained hyperchromatic for at least one-half to one hour after the injection of the proteid. If the peptone was injected after the splanchnic nerves were cut the cells were normal half an hour later. If the animal was deeply narcotized and the splanchnics were cut the cells were mostly hyperchromatic in half an hour after the peptone injection, and fatigued in one hour and twenty minutes.

### AUTO-INTOXICATION, TOXINS, AND INFECTIONS

After the injection of a toxin or of live bacilli the hyperchromatic state is very fleeting and unless the brain is examined in a very short time this stage will have given way to that of fatigue. The injection of typhoid bacilli showed that all the cells were in a fatigued state after 55 minutes. After the injection of an extract of feces, of skatol, or of indol the cells were mostly all fatigued in one-half hour. With tetanus toxin



there was fatigue and some exhaustion after one-half hour. The injection of gonorrhoeal and mixed infection phylacogen produced a hyperchromatism which disappeared no sooner in case of the mixed infection than of the gonorrhoeal phylacogen.

### DRUGS

Sodium salicylate, leucin and creatin and nicotin gave a marked hyperchromatic state after one-half hour. The injection of adrenalin gave an extreme hyperchromatic state which did not change to the fatigued state for five hours. An injection of a dog's own macerated thyroid gland gave a decided increase in the hyperchromatic cells. Injection of thyroid extract, grs. viii, resulted in slight hyperchromatism after 37 minutes. In ten minutes after a single physiological dose of strychnin there is marked hyperchromatism. After two such doses, the number of hyperchromatic cells is decreased, and the fatigued cells are increased in number. After a double adrenalectomy the injection of a single physiological dose of strychnin produces only a slight degree of hyperchromatism which is neither as marked nor as constant as in the animal with the adrenals intact.

### DOUBLE ADRENALECTOMY

There is a rapid loss of the stainable material after a removal of both adrenals.

### PANCREATECTOMY

After the removal of the entire pancreas the cells are all hyperchromatic and active, a condition in marked contrast to that seen after the removal of both adrenals.

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**Announcement of Award by the Smithsonian Institution of Hodgkins Prize for essay "On the Relation of Atmospheric Air to Tuberculosis."** On the recommendation of the Committee on the Award of the Hodgins Prize of \$1,500.00 for the best treatise "On the Relation of Atmospheric Air to Tuberculosis," which was offered by the Smithsonian Institution in connection with the International Congress on Tuberculosis held in Washington in 1908, the institution announces that the prize has been equally divided between Doctor Guy Hinsdale of Hot Springs, Virginia, for his paper on "Tuberculosis in Relation to Atmospheric Air," and Doctor S. Adolphus Knopf of New York City, for his treatise "On the Relation of Atmospheric Air to Tuberculosis."

The members of the Committee on Award were:

Doctor William H. Welch, Johns Hopkins University, Baltimore, Maryland, chairman; Doctor Hermann M. Biggs, New York City; Professor W. M. Davis, Cambridge, Mass.; Doctor G. Dock, Washington University Medical School, St. Louis, Missouri; Doctor Simon Flexner, Rockefeller Institute for Medical Research, New York City; Doctor John S. Fulton, Baltimore, Maryland; Brig. Gen. George M. Sternberg, U. S. A. (Retired), Washington, D. C.

## TREATMENT OF INFANTILE PARALYSIS

By GEORGE I. BAUMAN, M.D., Cleveland

In the past few years much has been learned and much written regarding the etiology, the infectiousness and the statistics of epidemics of infantile paralysis but for the good of the patient and the credit of the attendant too little has been said about the treatment.

In the acute stage it is pretty generally conceded that rest, ice-bags to the spine and catharsis are the essentials. It seems doubtful whether a vaccine will ever be discovered that will be of any use as the damage is usually done before a diagnosis can be made. Urotropin should be given although there is some question as to its efficacy. The patient should be kept upon his abdomen as much as possible and when on the back he can be best supported and kept quiet by lying in a plaster bed. This is made by soaking sheets of crinolin of the desired length in plaster cream and applying to the back. After hardening the shell can be removed, padded and used as a bed. In this the patient can be carried out-of-doors and it will no doubt be found that fresh air and sunshine are as important in this as in many other diseases. There is some dispute as to just how long this fixation should be continued, some recommending its use for six months or even a year. A month or two is probably sufficient as too prolonged fixation would certainly tend to increase muscular atrophy. One can be guided in this largely by the muscular soreness. As soon as this has disappeared active measures should be taken to restore muscular activity. During this first stage of treatment one should watch for contractures and prevent the development of any deformity by proper splints.

After all muscular tenderness has disappeared massage and muscle training should be started. This should be as efficient and the treatments as frequent as the patient can obtain and continued as long as there is the slightest improvement. At this time proper braces should be applied to prevent deformity and to allow and encourage the freest possible use of the paralyzed part. In the severe cases much can be accomplished by the use of special contrivances as a trapeze, parallel bars, crutches, special playthings, etc., to encourage use of the affected muscles. Electricity has been used a great deal and may be of some benefit but too much stress cannot be laid upon the impor-

tance in this stage of use of the paralyzed part, massage and muscle training. These should be persisted in for at least one year and in the severe cases for two years from the date of onset.

No operative work should be done during this time except tenotomies if indicated to correct deformities. This rule also applies to all neglected cases, i. e., the first operation in a neglected case should aim simply to correct deformity. Suitable braces should then be applied to hold the part in the most favorable position for functional use. It will then be found that many muscles that were considered paralyzed will return to partial or complete function.

In the stationary period, after all improvement has ceased, efforts should be made to utilize all existing muscles to the best possible advantage.

To this end the following procedures have been carried out: tendon transplantation, tendon lengthening, tendon shortening, arthrodesis, silk ligaments, removal of skin areas, nerve grafting, removal of bone and osteotomy. These measures will be considered separately.

*Tendon transplanting:* This has been probably the most common and withal the most satisfactory operation performed in infantile paralysis. There have, however, been many disappointing results. The causes of failure have been the improper selection of case or tendon, imperfect technique of operation or neglect of after treatment. The following rules should govern the operation: The patient should be at least five or six years of age in order that he may intelligently follow directions regarding the use or attempted use of the transplanted tendon. No tendon serving a useful purpose should be used, at least in its entirety. The tendon of a normally weak or small muscle should not be expected to replace that of a large strong muscle. Notwithstanding the teaching of Vulpius, grafting of tendon to tendon is not as satisfactory as grafting of tendon to bone. Lange's method of using silk to lengthen the tendon often is of great aid in the operation. Tendon transplantation is very much more successful in the leg than in the arm, although several operations have been devised that are of benefit in paralysis of the shoulder. Often times the muscle of the transplanted tendon will not perform the work that is expected or desired of it and yet the operation will be of benefit in restoring a certain amount of stability or balance to an otherwise useless or deformed joint.

If the tendon is not sutured under the proper tension the result is apt to be disappointing. One of the most successful and least used of the tendon transplantations is the deflection of the biceps or semitendinosus or both to the patella to reinforce the quadriceps.

Tendon lengthening and tendon shortening have only a limited usefulness as the results are more or less temporary. In a long standing, extreme case of talipes equinus, the tendo Achillis should be lengthened rather than tenotomized.

*Arthrodesis:* This operation which consists in the artificial stiffening of a joint ranks second only to tendon transplantation in usefulness in the treatment of infantile paralysis. It should be done only after every other means have failed to obtain a stable joint, in other words practically only in flail joints. It should not be done before the age of eight or ten. In the selection of the case some consideration must be given to the social standing of the patient. If the matter of expense and annoyance are of little importance braces are as a rule to be preferred to arthrodesis. It is, however, frequently more difficult to find a surgeon as competent to direct the making and fitting of a proper brace as to perform an arthrodesis. In my opinion a stiff ankle and sometimes a stiff shoulder joint is preferable to the flail joint properly braced. From my experience the best and simplest method of performing an arthrodesis of the ankle is to transplant a piece of the tibia to the anterior surface of the joint. In the knee the patella may be denuded of periosteum, removed and used to bridge over the femur and tibia.

Silk strands have been passed through the joint (Bartow) or through the tendon sheath (Allison) with the object of producing more or less stiffening of the joint. My results with the latter method have not been very favorable. It seems to me it is applicable more as an aid to tendon transplantation than as a substitute for arthrodesis. With more experience and better technique good results may be obtained from this operation in the future.

*Removal of skin areas:* This operation which consists in the removal of a sufficient area of redundant skin to keep the part in the desired position, apparently originated with Robert Jones and has been little used in this country. It has a certain field of usefulness in some cases in young children, especially about the ankle, elbow and shoulder. Jones has found in a num-

ber of cases that the relaxation of certain apparently paralyzed muscles obtained from the operation has resulted in the recovery of muscular power.

*Nerve grafting.* Spitzzy has probably done more experimental work on nerve grafting and more operations in infantile paralysis than anyone else and claims some good results. The few good results are probably due more to the vigorous concomitant treatment than to the operation itself.

Resection of bone is frequently necessary to correct a long-standing deformity especially of the foot.

Knock knee, which often results from infantile paralysis, may be corrected by osteotomy of the femur.

To sum up. In the acute stage: Rest and fixation continued for six or eight weeks.

In the stage of improvement: Persistent and efficient massage and muscle training continued for a year or two. Prevention of deformity and encouragement of use of the affected part.

In the stationary period: Proper operations and braces.

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**Natural and Synthetic Salicylates.**—Report of the Council on Pharmacy and Chemistry. With the view of determining the claimed superiority of "natural" salicylic acid and salicylates over the "synthetic" varieties, a practical study of the question was made under the auspices of the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry. The investigations having been completed, the Council adopted the following report and authorized its publication.

W. A. Puckner, Secretary.

It has often been stated in medical papers, and particularly in the advertisements of manufacturers, that salicylates prepared synthetically are less effective than those prepared from the oils of wintergreen or birch, the so-called "natural" products, and that synthetic sodium salicylate is much more dangerous. These contentions, if true, should abolish the use of the synthetic products. If, on the other hand, these contentions are unfounded, there exists no good reason for the use of the much more expensive "natural" products.

To settle this question, the Committee on Therapeutic Research of the Council caused a series of investigations to be made. These showed conclusively that:

1. Contrary to certain statements in the older literature, there is no difference in the toxic dose for animals between "natural" sodium salicylate, the most highly purified synthetic, and the cheapest commercial sodium salicylate now found on the market.

2. The evidence for the claimed clinical differences, as found in medical literature, is extremely unsatisfactory and inconclusive.

3. No significant chemical impurities are present in commercial synthetic salicylate.

4. No difference can be detected clinically, either in the therapeutic or toxic effects, if the comparison is made under conditions which strictly exclude personal bias.

The Council therefore concludes that there is no difference in the actions of "natural" and synthetic salicylates, and that statements that differences exist are unfounded.—*J. A. M. A.*

**The President's Program and a Department of Health.**—President Wilson evidently believes that party platforms are made to be carried out and not merely for the purpose of winning elections. According to Washington newspaper correspondents, it is Mr. Wilson's intention to carry out the promises of the Baltimore platform during the next session of Congress. A recent dispatch from Washington in the *Chicago Tribune* says:

"The President has insisted that during the pending special session, the Democrats revise the tariff and reform the currency. This will leave them free during the next session and the regular session a year hence to pass bills strengthening the Sherman law so as to destroy the trust evil, conserving natural resources and granting ultimate independence to the Philippines, providing employees' compensation within federal jurisdiction, creating reforms in the civil and criminal laws, limiting the amount of campaign contributions and providing publicity before elections, improving and developing the Mississippi River, and establishing a national health service."

This program includes the principal promises of the Democratic party made before the last election. The public health plank of the Baltimore platform is easily the strongest declaration on this subject which has been made by any political party:

"We reaffirm our previous declaration advocating the union and strengthening of the various governmental agencies relating to pure foods, quarantine, vital statistics, and human health. Thus united and administering without partiality to or discrimination against any school of medicine or system of healing, they would constitute a single health service not subordinate to any commercial or financial interests, but devoted exclusively to the conservation of human life and efficiency. Moreover, this health service should co-operate with the health agencies of our various states and cities without interference with their prerogatives or with the freedom of individuals to employ such medical or hygienic aid as they may see fit."

This statement, which amply defines the scope and function of such a national department of health as is desirable, and yet fully safeguards the rights of each individual and satisfies the objections of any honest critic, is evidently regarded by Mr. Wilson as one of the most important planks in his party's platform. The inclusion of a national department of health in the administration program cannot fail to be gratifying to all of the advocates of better federal health organization. The discussion of this subject during the past three years has been of immense educational value. The prospects for practical, constructive legislation, providing for an enlarged health machinery as a part of our federal government, are better today than ever before. The duty and the opportunity of the medical profession and of medical organizations are clear. Let us be prepared unselfishly and without partisanship to give public-spirited assistance to the administration in devising plans for a national department of health that will be a safeguard to the people against disease and will command the support of all intelligent and public-spirited citizens.

# The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and  
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

THE OFFICIAL ORGAN OF THE ACADEMY OF MEDICINE OF CLEVELAND

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Entered March 7, 1902, as Second-Class Matter, Post-Office at Cleveland, Ohio, under  
Act of Congress of March 3, 1879.

Organized January 20, 1902

Capital Stock \$6,000

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Short notes upon clinical experiences or reports of interesting cases will be welcomed by the editors.

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## EDITORIAL

### THE NECESSITY FOR INSTRUCTION IN THE PRE- VENTION OF INFANT MORTALITY IN RURAL COMMUNITIES

During the past decade an active campaign has been waged in the various cities in this country and abroad to lessen the mortality among infants. These efforts have been very successful through the organization of babies' dispensaries and fresh

air camps, which attempt to educate the mothers in the proper methods of caring for their babies. Great attention has also been paid to the question of pure milk supply, so that at the present time 125 dairies throughout the country are engaged in producing certified milk.

However, in rural countries the conditions which surround the infant have changed very little in the past ten years. If the mother is fortunate enough to be able to nurse her baby, the latter thrives during the first year. The "second summer" is still dreaded, because the milk which the child is given is often unclean from dirty methods of milking, and because of insufficient supply of ice, the germs multiply rapidly, so that intestinal troubles are very common. If the mother is unable to nurse her baby, she turns either to the various "patent" foods or attempts to modify the milk herself, with often disastrous results. She seldom turns to her physician for instruction in feeding her baby until the latter is very ill. Part of the blame for this can be laid at the door of the medical profession because often the physician does not take the trouble to impress upon the mother the importance of intelligently caring for her baby and the necessity of skillfully modifying the milk. Some of the blame, too, may be attributed to the method of teaching pediatrics in our medical colleges, because so much attention is given to the caring for sick babies, and very little to the feeding of the normal, healthy infant.

The ordinary farmer sees no need for observing that the cows that supply milk for his baby are not tuberculous, that cleanliness in milking is essential, for he has a good wire strainer that takes out all the dirt, and that the baby's milk must be kept cool so that germs will not develop, for as a rule he is convinced in his own mind that all this talk about germs is nonsense, anyway. Further, the farm house frequently abounds with flies and these often serve to contaminate the milk. True, fresh air is abundant, but this cannot offset the disadvantages above described, so that there is a very high mortality among country babies.

What is needed is an organized campaign in rural communities to teach the mothers the necessity of pure milk and the intelligent care of their babies.

J. P.



## THE LONDON CONFERENCE ON INFANT MORTALITY

The recent conference on Infant Mortality, held in London last August, brought together workers from all parts of the world, so that the resolutions adopted as the sentiment of the conference are worthy of careful consideration. Among the points noted are the necessity of making the maternity benefit belong to the mother *legally* as well as in practice, in order to ensure that she actually obtains it. In this general connection it was suggested that if notice of pregnancy to the local authorities was compulsory, advise and material aid could be given to the mother during the period before the birth of the child in which proper nourishment is essential.

Recognition of the importance of the health of the girl at all periods of life is shown by the opinion that no education for girls should be permitted which does not provide for the proper development of their bodily health, as well as for instruction making the care of the home easier and more efficient in case of marriage. Great emphasis is laid on the control and instruction of midwives, with appreciation of the very definite place taken by the midwife among the proper classes. Finally it was urged that a series of commissions be appointed by the various Governments with regard to the relation of venereal disease to still births and to blindness. These recommendations cover the whole question of environment from before birth and even before conception, to the end of the child bearing age, and are of especial interest in their emphasis on the necessity of meeting emergencies *before they arrive*, while still providing for the results of those evils which can be modified slowly at best. One of the most interesting suggestions was that of Doctor Forsyth of London, to the effect that medical inspection of children should not be limited to the school period but should begin at once after the birth of the child. If practicable, this would of course reduce enormously the proportion of defects in children reaching the school age, as practically all of the most common defects such as bad teeth, adenoids, et cetera, originate before the sixth year. Special interest was aroused by the description of the methods used in Cleveland, on account of the successful co-operation between three different agencies, the municipality, the university, and the babies' dispensary.

R. G. P.

## DEPARTMENT OF THERAPEUTICS

**High Blood Pressure:** George Morris Piersol, in the September number of *The Therapeutic Gazette*, considers the management of high blood-pressure. At the outset it must be clearly borne in mind that persistent vascular hypertension is not a disease *per se*, but is merely a symptom of some underlying morbid process. When, through the introduction of clinical sphygmomanometers, high pressure first came to be generally recognized, there was a decided disposition to focus the attention too much on this symptom, and regardless of its significance, to attempt to combat it by vigorous measures. Happily, this tendency has gradually yielded to a more rational conception of the process, and we are learning to appreciate the importance of the teachings of Loeb, Janeway, and others, that high blood-pressure is primarily compensatory. In the two most important conditions associated with hypertension, chronic nephritis and arteriosclerosis, it has been shown that in the former, the high pressure is essential in order to maintain adequate elimination through damaged kidneys, and in arteriosclerosis, the elevated pressure helps increase the circulation in organs whose nutrition is impaired, because of diminished blood supply. Sometimes nature overdoes in her effort at compensation, and the elevation may reach a point that makes efforts directed toward its reduction justifiable. He emphasizes prophylaxis, with proper attention to the patient's general hygiene and mode of life. He asserts that the management of the condition, when dependent on some well-defined, irremediable anatomical change in the organism, is both difficult and unsatisfactory. Rest, diet, and elimination are efficient agents, and, as to drugs, he believes that the promiscuous use of the nitrites, whenever high blood pressure is encountered, regardless of its significance, must be looked upon as an ill-advised therapeutic habit into which too many of us have fallen. It seems well established that not only do the nitrites fail to do any lasting good, but in a number of cases, if we accept the compensatory conception of hypertension, they are capable of positive harm. It is evident that these various vasodilators find their chief use when it is necessary to combat some sudden condition of spasm, such as angina pectoris, or nocturnal dyspnea, but that they are inefficient as routine means of treatment. In fifty cases with average systolic pressure of 200 mm., nitroglycerin was used at some time in twenty-seven. Of these it seemed to have a beneficial effect on the blood pressure in but three. In six its value could not be determined, while in the remaining nineteen cases it had apparently no noteworthy effect. Paradoxical as it may seem, distinct benefit seems to have followed the use of digitalis in some cases, and it may be here employed in small doses with safety. It does good chiefly in those cases in which cardiac weakness is developing, and often is wonderfully efficient in relieving the distressing dyspnea and vertigo. Cardiac depressants are sometimes effective in relieving the headaches, throbbing and vertigo. He uses aconitin, or the tincture of aconite, and veratum viride sometimes proves useful.

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**Cactus:** *The American Journal of Clinical Medicine* for October comments upon cactus, recent investigations by Groeber, of Berlin, furnishing laboratory proof of its clinical value. This article cannot but strengthen the confidence of those who use this drug. While, of course, the testimony of a single reporter, and that based upon relatively a few tests, will not be accepted by all as conclusive, they believe that ultimately there will be ample corroboration of Groeber's results. He compares cactus with digitalis, and finds the remedy possessed of a definite action similar to yet less powerful than that of digitalis. When the typical digitalis action is desired—the profound stimulation of the heart-muscle and the constriction of the arterial coats so characteristic of the drug—then there is nothing to compare with the foxglove. But every

physician who has used cactus and its concentrated preparations, knows that it has a place peculiarly its own—that to *steady* the action of a disturbed heart, and to give it a gentle tone, and to do this without danger of cumulative or other toxic effects, cactus is a remedy that can be depended upon. Professor John Wm. Lloyd some time ago found that of 10,000 reports from physicians as to the most generally used of drugs, 6,239 reported it as their favorite remedy. Groeber's paper from the *Therap. Monat* is given. He states that, in view of his experiments, cactus (*cereus*) *grandiflorus* actually possesses an action on the heart such as belongs to the substances of the *digitalis* group. This action upon the heart is ascribable to a glucoside present in addition to the alkaloids in *cereus grandiflorus*. In view of the minute yield of the active substance, he cannot ascribe to this cactacea an importance as a heart remedy in the sense of an effective *digitalis* therapy for human pathology.

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**Diuretics.** Thomas Linn, in *The International Clinics* (Vol. III, 23rd series) reports on the newer medicinal and non-medicinal diuretics. Linossier and others assert that in cases of actual suppression or lessening of the amount of urine, the best method is to put the patient to bed. It is a curious fact that the erect position will keep up the difficulty. In all persons of a certain age, there is more or less renal sclerosis, and the best rule is the old one—bed and milk. Physiological diuretics seems to be the future of the drug treatment. Professor Chevalier says: "The kidney should be regarded as a continuous secreting gland. It has an elective function that is excited by the products secreted by itself." He found that in the process of disintegrating, the albuminoid molecule gives off urea. As to real drug diuretics, Professor A. Chauffard presented the most original communication at the Lyons congress when describing a new diuretic, which is formed in the organism by synthesis. It is produced by giving the bromin followed by salicylate of sodium. When the urine is found to remain at about 1500 after a patient has been taking theobromin in doses of one gramme or more per day, we add to it two or three grammes of salicylate of sodium, and on the following day find the urine increased to 2500 or 3000; in one case it was even 6000. The theobromin is usually given in the morning, and the salicylate of sodium in the afternoon. This increase persists only for a few days. After a few days of rest the test may be repeated. This use of theobromin and sodium seems to be a definite measure to be resorted to in many cases where a diuretic is needed. Nobecourt and Pasteau are using very small doses of theobromin and digitalin for children. It would seem that 0.4 gramme (6 grains) of theobromin is just as effective as one gramme (15 grains). Doctor Vitry claims that calcium chloride has an excellent diuretic effect, and is useful in eliminating the chlorides. He has used it with benefit in cardiac disease with obesity.

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**Alcohol.** In the September number of *American Medicine*, Abraham Jacobi calls attention to an editorial in the July number of that journal which refers to the latest views of alcohol as expounded by Ewald. It states that all theories to the effect that it is to be classed as a stimulant are about exploded. It is also asserted that "those who are always waiting for some medical oracle to speak can now come over without fear to the modern consideration of alcohol as a sedative or anesthetic." Jacobi begs leave to say that the explosion has not reached his ears. He believes that the time will never come when alcohol will no longer be used in illness, for there are conditions which absolutely demand the use of alcohol as a prominent part of medication. He does not care to class alcohol anywhere, and does not contest observations and experiments either on healthy or diseased men, and on animals. Indeed, he has great respect for experiments and observations in and out of

laboratories. One of the most profitable laboratories, however, is the hospital and the private bedside. The virulent epidemics of diphtheria forty years ago, with sepsis and gangrene, were mitigated by his introduction of nasal irrigations and sometimes restored to final health by doses of alcoholic beverages. The incurable form with formidable lymph, body swelling, nervous prostration and excessive sepsis, is always a mixed infection, and in such cases antitoxin has early proved unsatisfactory. No mixed infection is amenable to the action of antitoxin. After sixty years of practice, when he trusts in alcohol as a powerful remedy in cases of diphtheria and other sepsis, he may be credited with ample experience both in successes and failures extending over half a century. He cites numerous cases where alcohol was evidently the life saving agent, and asserts that *no amount of whiskey will lead to intoxication when its effect is wanted to combat sepsis*, and repeats that no amount of alcohol will intoxicate a thoroughly septic person. He instances one case, that of a refined lady, who had typhoid fever fifty years ago. She was thoroughly septic, and took a quart of whiskey daily ten days in succession, with recovery, and not a drop since. He states that his cases have not all been cured as he belongs to the class that has to meet failure. He continues: "But I have seen what was considered to take a favorable turn. There are, in diphtheria, cases which are not influenced by antitoxin in small or big doses. That class of cases is not always hopeless when the doctor has hope and discrimination, and the courage to fight infection and to cheat the undertaker. I refuse to deal in theories. I cannot tell the cause of antiseptic action of alcoholic beverages when administered in sufficient doses. I merely refer to occurrences and observations extending over half a century and more. Let somebody else explain; meanwhile take the hint."

**Pituitary Extract.** F. C. Harrison, in *The Archives of Internal Medicine* for September, reports on the use of pituitary extracts in obstetrics. He believes that "it has been so extensively used, that a study of the large number of papers and cases now published enables one to formulate with considerable precision rules for its employment. His conclusions are (1) Pituitary is of great value in cases of weakness in uterine movement after the soft parts are well dilated. Failure in these cases is rare, probably less than one per cent. The later in labor, but before delivery, the more striking the effect. The danger to the mother and child is very slight. (2) As an addition to some mechanical method, e. g., the Champetier de Ribes bag, it is of great value in bringing on premature labor or abortion. In the former case it may be sufficient in itself, but there is some risk of tetanus of the cervix, or of the uterus, especially when repeated injections are required. (3) For delivery of the placenta, its use is accompanied by the danger of tetanus uteri and retention. (4) In postpartum hemorrhage, a considerable percentage of failure may be expected. When a need for a uterine stimulant arises, in cases conforming to these indications, he believes that pituitary extract is of the greatest value.

*The New York Medical Journal* of September 13, calls attention to the dangers of pituitary extract in obstetrics, stating that while in general its oxytocic powers rival and in some cases exceed those of ergot, the precise field of its application, and relative value are still *subjudice*. While the drug has usually been found to produce powerful intermittent uterine contractions, Edgar found that these theoretically intermittent contractions approached practically, in the face of resistance, a continuous character, and must therefore be reckoned with as capable of introducing danger in the use of the drug. Among thirty-nine cases of inertia in the first and second stages of labor, under Edgar's observation, two and probably four stillbirths resulted from the administration of pituitary extract before complete dilation of the os. His conclusion is that pituitary extract should never be administered to overcome inertia in any stage

of labor, unless anesthesia can be immediately instituted, and preparations have been made for immediate operative delivery, if this should be required.

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**Digitalis:** In the September number of *Merk's Archives* (from *Maryland Med. Jour.*), Wilfred M. Barton presents some observations on the action of Digitalis, summarizing as follows: (1) Historically considered, it is interesting to note that the lately discovered fact that digitalis depresses the conductivity of the bundle of His, thus acting upon the heart by lowering one of the important functions, tends to restore the older view, that, essentially considered, digitalis is a sedative much more than a stimulant to the heart. (2) Physiologically considered, that is to say upon healthy animals under the conditions of laboratory experiments digitalis slows the heart through vagus stimulation, increases the force of the systole, diminishes the extent of diastole, constricts the vessels, and raises the blood-pressure. A depression of the healthy bundle has not unequivocally been made out. (3) Clinically considered, it is found that beneficial therapeutic results from digitalis found almost exclusively in that particular form of cardiopathy which has received the name of auricular fibrillation. In this condition the effects of digitalis are quite marvelous. In auricular fibrillation the bundle of His may be assumed to be a condition of pathological excitability and irritability, since normal impulse formation is replaced by impulse formation at multiple auricular foci. The action of digitalis in auricular fibrillation is to depress the function of the bundle of His, and thus to reduce the formation and transmission of pathologically formed impulses. Vagus stimulation plays no part in the slowing of the heart, except in non-fibrillating cases. Whether or not the force of ventricular contraction is increased, is not known. It is not inconceivable that digitalis may produce a simultaneous depression and stimulation of different parts of the cardiac musculature.

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**Hydrate of Choral:** T. D. Crothers, in the *Medical Council* for August, calls attention to the danger from hydrate of chloral. Chloral has been used more in delirious states from alcohol and other causes than in any other way. For a long time it has been combined with bromides, the supposition being that it increases the anesthetic action and is safer than when given separately. Experience shows that when combined with bromides, even in small doses, there are certain cumulative effects, which develop in palsy, particularly from the central areas of the brain. Thus aphasia and loss of memory, defects of the senses, and, sometimes, serious derangements of nutrition follow. When bromide is given alone these are not noticed so prominently, and when chloral is given alone other symptoms follow which are not noticed in the combination. In his experience with the neurotics of the alcoholic and drug type, chloral is a very uncertain drug, and should never be given for any length of time, and the effects should be carefully watched. There are many physicians who use chloral with the confidence that it is perfectly safe. This is unwarranted, particularly in alcoholics and neurotics. The so-called heart diseases or sudden unexplainable collapses and deaths suggest chloral and perhaps a peculiar susceptibility to it, not only in its action on the nerve centers but also its prolonged depression of vitality beyond the point of restoration. The treatment of chloral addiction is the same as that of toxemias. It calls for profound elimination, baths and rest. The extreme exhaustion and lowered heart's action, in persons whose diagnosis is not clear, suggest chloral; and drugs that are followed by rapid stupor point to the same thing. Finally it is evident that hydrate of chloral has a very limited value in medicine, and this is growing less and less. It belongs to an uncertain class of drugs, the effects of which cannot be predicted and are not uniform or certain, and are likely any moment to change to intense toxic conditions.

## NEW AND NONOFFICIAL REMEDIES

Since publication of *New and Nonofficial Remedies*, 1913, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

**Whooping Cough Vaccine (Bordet-Gengou Bacillus).**—This vaccine is prepared from the Bordet-Gengou Bacillus derived from a case of whooping cough. Sophian-Hall-Alexander Laboratories, Kansas City, Mo. (*Jour. A. M. A., Sept. 6, 1913, p. 771*).

**Electr-Hg.**—A colloidal suspension of mercury, equivalent to 0.1 per cent metallic mercury rendered stable by sodium arabate. Electr-Hg. is claimed to have an action similar to that of soluble salts of mercury. Injected intramuscularly, it is said not to produce pain or indurations. It is used intramuscularly, intravenously and also intraspinally. Electr-Hg. is marketed in the form of Ampules of Electr-Hg, 5 Cc., in a non-isotonized condition. The package contains a physiologic salt solution with directions for the extemporaneous isotonicization of the preparation before the injection. Comar and Cie, Paris, France (*Jour. A. M. A., Sept. 13, 1913, p. 868*).

**Melubrin.**—Melubrin is sodium 1-phenyl-2, 3-dimethyl-5-pyrazolon-4-amido-methan-sulphonate. It is closely related to antipyrin. Melubrin is white, almost tasteless and readily soluble in water. It is said to have almost no effect on the circulation or respiration in moderate doses, but to be a powerful antipyretic and analgesic. It is claimed to be useful in sciatica and other neuralgias and as an antipyretic in febrile affections. It is said to act similar to salicylates in acute rheumatism. Farbwerke-Hoechst Co., New York (*Jour. A. M. A., Sept. 13, 1913, p. 869*).

**Acne Bacillus Vaccine.**—Each Cc. contains 50 million killed acne bacilli suspended in physiologic salt solution with 4/10 per cent trikresol. Cutter Laboratory, Berkeley, Cal.

**Coli Vaccine.**—A suspension of the bacillus coli communis in physiologic salt solution with 4/10 per cent trikresol. Containing 50 million killed bacilli coli per Cc. Cutter Laboratory, Berkeley, Cal.

**Pneumococcic Vaccine.**—A suspension of mixed strains of the Diplococcus pneumoniae in physiologic salt solution with 4/10 per cent trikresol. Containing 50 million killed pneumococci in each Cc. Cutter Laboratory, Berkeley, Cal.

**Staph-Acne Vaccine.**—A mixture of killed staphylococci and of killed acne bacilli in physiologic salt solution with 4/10 per cent trikresol; each Cc. containing 500 million staphylococci and 50 million acne bacilli. Cutter Laboratory, Berkeley, Cal.

**Staphylococcic Vaccine.**—A suspension of the Staphylococcus aureus, albus and citreus in physiologic salt solution with 4/10 per cent trikresol. A suspension of various strains of staphylococci containing about 500 million to each Cc. Cutter Laboratory, Berkeley, Cal.

**Pyocyaneus Vaccine.**—A suspension of mixed strains of killed bacillus, pyocyaneus, in physiologic salt solution with 4/10 per cent trikresol, 1 Cc. containing about 50 million killed bacilli. Cutter Laboratory, Berkeley, Cal.

**Streptococcic Vaccine.**—A suspension containing in each Cc. 50 million of killed streptococci in physiologic salt solution with 4/10 per cent trikresol. Cutter Laboratory, Berkeley, Cal.

**Typhoid Vaccine.**—A suspension of killed bacilli in physiologic salt solution with 4/10 per cent trikresol; containing 50 million killed typhoid bacilli of various strains in each Cc. Cutter Laboratory, Berkeley, Cal.

**Typhoid Prophylactic.**—A suspension made from a single strain, viz., that employed by the United States Army. Each Cc. contains 1 billion killed typhoid bacilli. Cutter Laboratory, Berkeley, Cal. (*Jour. A. M. A., Sept. 13, 1913, p. 869*)

Antigonococcus Serum.—Marketed in 10 Cc. syringes. Lederle Antitoxin Laboratories, New York City.

Antimeningococcus Serum (Antimeningitis Serum).—Marketed in 15 Cc. cylinders. Lederle Antitoxin Laboratories, New York City.

Antistreptococcus Serum.—Marketed in 50 Cc. cylinders. Lederle Antitoxin Laboratories, New York City.

Antistreptococcus Serum, Polyvalent.—Marketed in 10 Cc. syringes. Lederle Antitoxin Laboratories, New York City.

Antipneumococcus Serum.—Marketed in 50 Cc. cylinders and in 10 Cc. syringes. Lederle Antitoxin Laboratories, New York City.

Normal Horse Serum.—Marketed in 10 Cc. syringe and 100 Cc. vials. Lederle Laboratories, New York City.

Scarlet Fever Treatment.—Marketed in four strengths in syringe packages, two vial packages and 20 Cc. vials. Lederle Antitoxin Laboratories, New York City.

Scarlet Fever Prophylactic.—Marketed in packages of three syringes and in packages of three vials. Lederle Antitoxin Laboratories, New York City (*Jour. A. M. A., Sept. 13, 1913, p. 869*).

Anti-Typhoid Vaccine (Immunizing).—This vaccine is prepared according to Russel from the strain used in the U. S. Army. It is marketed in three syringes and in ampules. National Vaccine and Antitoxin Institute, Washington, D. C. (*Jour. A. M. A., Sept. 13, 1913, p. 869*).

Since September 1 the following articles have been accepted for inclusion with New and Nonofficial Remedies:

Abbott Alkaloidal Co.:

Acne Bacterin, Polyvalent.

Coli Bacterin, Polyvalent.

Friedlander Bacterin, Polyvalent.

Gonococcus Bacterin, Polyvalent.

Pneumo-Bacterin, Polyvalent.

Staphylo-Bacterin, Polyvalent.

Staphylo-Albus Bacterin, Polyvalent.

Staphylo-Aureus Bacterin, Polyvalent.

Staphylo-Bacterins (Human) Albus, Aureus and Citreus.

Strepto-Bacterin (Human).

Typho Bacterin, Polyvalent.

Typhoid Prophylactic.

Slee's Antistreptococcus Serum.

Slee's Antimeningitis Serum.

Slee's Normal Serum.

Herman Barker:

Barker's Gluten Food A.

Barker's Gluten Food B.

Barker's Gluten Food C.

Farbwerke-Hoechst Co.:

Ninhydrin.

Placentapeptone.

Lederle Laboratories:

Rabies Vaccine.

Merck & Co.:

Copper Citrate.

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Having announced that the advertising claims now made by the Sophia-Hall-Alexander Laboratories will be adhered to by E. R. Squibb & Sons the Council voted that the acceptance of the products described in the *Journal of the American Medical Association*, April 5, 1913, p. 1074; April 19, 1913, p. 1227, and Sept. 6, 1913, p. 771, will be allowed to stand.

## The Academy of Medicine of Cleveland

### ACADEMY MEETINGS

The one-hundred and third regular meeting of the Academy was held at 8:00 P. M., Friday, October 17, 1913, at the Cleveland Medical Library, the President, H. L. Sanford, in the chair.

The program was as follows:

#### 1, The Significance of the Wassermann Reaction in Latent Syphilis with Report of Cases, by Richard Dexter, M. D.

The speaker said that the value of the Wassermann as an aid to the diagnosis and study of syphilis needed scarcely to be discussed. This peculiar biologic reaction is present in a very high per cent of individuals who are harboring an active syphilitic process. The highest percentage of occurrence is in the secondary period of the disease and thence the number of positive reactions declines, rarely dropping below fifty per cent even in the latest stages of the disease. The positive Wassermann is merely another and one of the most constant symptoms of syphilis. The reasons for its relatively constant occurrence are still largely a matter of conjecture.

By the latent period of syphilis, is meant that period of the disease during which no active signs of the trouble can be detected, although somewhere in the body the spirochetes lie latent. The latent syphilis of today is in a large number of cases the so called cured syphilis of years ago. Individuals showing a positive Wassermann are as much in need of treatment as though they presented a well marked secondary eruption. If they are allowed to go on without active treatment, certain of them will develop the manifestations of late syphilis.

The objection has been raised that a positive reaction in the absence of any active signs, means nothing. To combat this view, three cases were cited, in all of which manifestations of syphilis developed more than ten years after the primary infection. It is conceivable that had the latent syphilis, in these cases, been recognized by the Wassermann and active treatment instituted, in each the process might have been cured or at least arrested.

A positive reaction in cases of latent syphilis means disease still active. No case should be pronounced cured until a number of negative Wassermann reactions, done over a long period of time have been found.

H. N. Cole in opening the discussion said that great advances had been made in the last two years in the determination of latent syphilis. Before the advent of the Wassermann reaction, a patient might have a suspicious history and symptoms, but no positive diagnosis was possible.

Some workers get a higher percent of positive reactions than others due to more careful technic and the kind of antigen used. In the skin clinic at Lakeside hospital, a positive reaction was secured with the blood of a patient who had had syphilis thirty-five years before. A Wassermann test may be strongly positive when the symptoms and signs of the disease are almost negative.

Latent syphilis furnishes an excellent study for students of immunity. The powers of the body, can, for a time, it seems, overcome the toxins of the *trepanoma pallida*, if such exist, but sooner or later they succumb.

C. W. Stone said that the term latent syphilis did not appeal to him as the most appropriate designation for the condition. As was said by the speaker, the Wassermann is a symptom of the disease. If this reaction is a sign of active syphilis, how can we designate this condition as latent. Occult, hidden or visceral syphillitis would be a better term.

One case treated for stomach trouble, revealed a positive Wassermann, and when salvarsan was administered the symptoms subsided promptly. A large per cent of the cases of paresis give no hint of syphilis but give positive Wassermanns practically without exception. The advent of the Wassermann reaction has given a new viewpoint of syphilis.



S. L. Bernstein asked the speaker, whether with a case of syphilis of long standing, the administration of mercury can alter the Wassermann reaction.

W. H. Merriam said that he had had two cases, both of which exhibited symptoms of syphilis of the nervous system, but neither gave positive Wassermann reactions. The history in the one case was suspicious, but in the other case was negative. The one case showed markedly degenerated knee reflexes, the other had toe drop. Both patients were given the mercury treatment. In the one there was complete recovery, in the other there was later paralysis.

P. A. Jacobs asked Doctor Dexter, how many serum examinations had been made in the forty-one per cent of negative cases reported?

Doctor Dexter, in closing, declared that the term latent syphilis, like the hobble and slit skirt, was one of the things that was in existence. He commended, however, the terms occult, hidden or visceral in description of the condition.

The Wassermann reaction may disappear early, under a short course of mercury. Later, however, a much longer course is necessary. If a patient under treatment, gives a negative Wassermann, and is doing well, the severity of the symptoms must determine the treatment. If in doubt, with a negative Wassermann, the treatment can be discontinued, the test tried again at intervals, and the course of treatment reinstated when the signs and symptoms demand.

The speaker called attention to the fact that the patients reported by W. H. Merriam, both showed nervous symptoms. In such cases the blood is often negative while examination of the cerebro-spinal fluid will show a positive reaction. Both these may be negative, however, and the Noguchi test show a positive reaction. In view of these findings, such cases could scarcely be put in the class of negative Wassermanns.

Among the first intramuscular injections of salvarsan in the city, was one done on a case at Marine hospital. The Wassermann was negative. The patient was run down, in poor condition, had marked syphilides, and showed the remains of a chancre. Two days after the administration of salvarsan, the Wassermann test showed a positive reaction and the lesions cleared up and disappeared.

## **2, The Relation of the Department of Public Health to the Venereal Problem, by John H. Landis, Health Officer of Cincinnati.**

The speaker said that most health problems resolve themselves into questions of heredity or environment. The health problem presented by the social evil is a question involving both of these and in addition the sexual instinct. The three combined produce a problem which has vexed mankind throughout all history.

Sexual intercourse is a response to a primal instinct, an instinct as insistent as that of hunger or thirst. Its promiscuous gratification produces the social evil, with its attendant health problem.

Practically everyone has a remedy. All of these fail when applied. Social ostracism, branding, imprisonment, burning at the stake, all have failed. Any scheme which ignores the sexual instinct as the basic cause of the social evil is bound to fail.

Education, segregation, suppression, regulation and medical inspection have all been tried and all have failed. They have failed because elimination of a primal instinct by education is impossible. Segregation failed because no matter how perfect it may be, it does not eliminate the social evil but simply concentrates it within certain boundaries.

Regulation failed because it was a compromise and because it placed an instrument in the hands of officials that was used for purposes of extortion and blackmail and that led to the debauching of public officials. Medical inspection, the only method which gives any reason to hope that the evils resulting may be mitigated has failed or succeeded according to

the individual point of view. It may contribute to moral delinquency and actually increase the number of cases of venereal disease.

The infidel and the agnostic have contributed materially to the spread of vice. Religion on the other hand has acted as a powerful factor of restraint, by reason of the lofty ideals taught and the wholesome fear engendered.

Up to the present time, the deadly effects of gonorrhoea and syphilis have been overshadowed by the moral side of the question. The whole subject has been considered one unfit for discussion and one on which the general public should not be enlightened. It should be placed frankly before the world, where the spotlight of publicity can shine upon it.

These diseases constitute the most potent factor in the causation of blindness, deaf mutism, idiocy, insanity, paralysis, locomotor ataxia, and the other incapacitating and incurable affections which super-impose an enormous charge on the state and community. Millions of dollars are contributed to the support of defectives, but not a dollar has been spent in the dissemination of the saving knowledge which might prevent.

The speaker said that he believed a single standard of purity based on continence should be established. Young persons in the stage of development should be instructed and shown the pathological results which follow upon immoral practices. The complete eradication of the social evil should be striven for. Social and economic conditions should be corrected so that they will not favor the existence of the venereal problems. These ideal conditions can be attained only as the result of long years of work and in the meantime the health problem created by the social evil should receive the same careful attention by the medical profession that is accorded other infectious disease problems.

C. E. Ford, in opening the discussion, said that evidence had been introduced to show that there should be increased hospital facilities and equipment for the treatment of those dangerously infected with venereal disease.

The question of education is also important. There is much ignorance displayed by a certain class of people regarding venereal diseases. A case was reported at the health office in the city, of a man who had been refused admission to a house of prostitution on the grounds that he was suffering with venereal disease. A few minutes later he returned with a certificate from a local physician to the effect that he was physically fit. He was again refused admission. This case illustrates one phase of the danger which exists.

F. C. Herrick, expressed surprise, having witnessed the play, "Damaged Goods," to see how it was received by the audience. During the performance ripples of laughter went over the house. Many of the spectators were young people. Had they had proper instruction they would have seen a different phase to the problems presented.

Doctor Herrick inquired relative to the problem of education, whether young people should be instructed directly, or whether they should be given the information by their parents.

P. A. Jacobs declared that the medical profession was responsible for the spread of venereal disease. In an investigation of one hundred cases of gonorrhoea, it was found that seventy-two per cent of these were chronic. Fifty per cent of these cases had, however, been discharged previously, as cured.

In one case of impotence, due to a posterior urethritis, the patient was advised by his physician not to abstain from sexual intercourse. Physicians are not careful enough. Many cases are discharged as cured, when, as a matter of fact, they are not.

Richard Dexter thought that the question of education was a difficult one, the need for it being only too apparent to one who has seen many cases of syphilis and venereal disease. Ignorance is the cause of many such cases. Education should be instituted early, at the time when it counts most.

W. H. Merriam called attention to the fact that the normal child is curious and that an intelligent discussion by parents and teachers will prevent children from securing the information from the wrong source. He cited the case of a little boy, who after the birth of a baby sister, besieged his mother with questions relative to where she had come from. An intelligent discussion of the matter by the mother, satisfied the boy and he never recurred to the topic.

L. K. Baker said that as long as people are living in congested cities, just so long will the prevalence of venereal disease continue. The question, resolves itself into regulating life in the city and keeping people in the country. An equilibrium should be reached. The cities have more than their just proportion of inhabitants.

There is more immorality among young men of the city than those of the country. The immoral young men of the small towns and country drift gradually to the city.

Education is at the bottom of the alleviation of conditions. If a man knows that he must have a clean bill of health in order to marry an upright girl, the status of affairs will change rapidly.

W. G. Stern cited the statement of Rosseau, that the education of a child should begin twenty years before it is born. Wealth engenders heavy disadvantages and children overindulged have a heavy handicap to maintain strict standards of morals.

H. N. Cole declared that according to statistics, every sixth man in Paris has syphilis. In Berlin, every man at 19 has had gonorrhoea once, and at 29 has suffered from the infection twice. Syphilis is also surprisingly prevalent. An examination, in Berlin, conducted on several hundred prostitutes, selected indiscriminately, showed that practically all of them had syphilis.

Every week, at the skin clinic at Lakeside, at least one patient is received who has acquired syphilis on Hamilton Street.

Hospitalization of all cases of syphilis is an essential, and if practiced would cut down the disease enormously. Money is spent in the maintenance of insane asylums, why should it not be spent in the treatment of syphilis. Practically the only place in the city where syphilis can now be treated properly is at the City Hospital.

John H. Landis in closing the discussion declared that he was at a loss to say how the education advocated should be carried on. He said that if called on to talk to children on the subject of sex hygiene, he would decline, because of unfitness.

In Cincinnati, all females in houses of prostitution are inspected regularly. When found infected, they are locked up until the actively infectuous stage of the disease has passed. To prevent scandal to the department, the inspectors are sent out in squads of three. No certificates are issued by the department and no fees are charged for examination. To do either of these would be equivalent to licensing prostitution.

Gonorrhoea is placed on the same basis with smallpox. The keepers of all houses are told that their resorts will be closed up if persons suffering with infectuous diseases are found on the premises.

## EXPERIMENTAL MEDICINE SECTION.

The sixty-ninth regular meeting of this section was held Friday, Oct. 10, 1913, at the Cleveland Medical Library.

The following program was presented under the general heading **The Kinetic System. Theory:**

### 1, Introduction, by George W. Crile.

The speaker said that results from extensive research furnish strong evidence that a system evolved primarily for the transformation of latent energy into motion and heat, exists in the animal body. This system he

designated as the Kinetic system. Unlike the digestive, respiratory, circulatory, urinary and genital systems, which transform only such amounts of potential into kinetic energy as are required for their specific work, the Kinetic system has as its primary function the transformation of potential into kinetic energy. The Kinetic system, plays an important role although an indirect one in the performance of the functions of the other systems.

Among the organs in the Kinetic system are the brain, the thyroid, the adrenals, the liver, the pancreas, and the muscles. The brain is the great central battery which drives the body; the thyroid governs the conditions favoring tissue oxidation; the adrenals, the pancreas and the liver govern acidity and alkalinity and the adrenals also assist in governing the immediate oxidation processes; and the muscles are the great converters of latent energy into motion and heat.

Adaptation of species and individuals to their environments is made by means of the Kinetic system of organs evolved for the purpose of converting potential energy into heat and motion. Any change in any link of the kinetic chain modifies proportionately the entire Kinetic system.

There may result immediate breakdown, acute shock, or else the gradual modification of one or more of the kinetic organs may give rise to a number of diseases. This theory has already given us the shockless operation and it opens a possibility of controlling certain chronic diseases of that intensely kinetic organism—civilized man.

**2, Experimental (Lantern and Microscopic Demonstrations). The Effects of Various Stimuli on the Kinetic System. (Auto-Intoxication, foreign proteids, infections, drugs, anaphylaxis, emotional stimuli, pregnancy) by F. W. Hitchings, J. B. Austin, H. G. Sloan.**

The full account of experiments submitted under this heading may be found published in full in this issue, pages — to —.

**3, Diseases of the Kinetic System. (a) Shock. (b) Grave's Disease. (c) Cardiovascular Disease. (d) Toxemia of Pregnancy. (e) Neurasthenia. G. W. Crile.**

Doctor Crile's paper appears in full beginning on page— of this issue.

J. J. R. Macleod in opening the discussion declared that he did not understand the significance of the term kinetic system, as used in the paper. Every organ and tissue in the body is a part of such a system and to pick out four organs and tissues and place them arbitrarily under this head is not advantageous. The statement that the brain participates as the chief organ of this system is based solely on histological evidence, which has been shown to be entirely untrustworthy not only by Nissl, the originator of the method, but by most subsequent workers.

The scientific honesty of the research was not questioned, but none of the results obtained lend color to the conclusion that kinetic energy is discharged by the brain. The method employed for testing the presence of the adrenalin in the blood has been shown by G. N. Stewart, a world-famous physiologist to be unreliable. Stewart showed that the use of the intestine, without any other control is entirely untrustworthy to determine the presence of adrenalin in the blood.

Even though adrenalin has been found to be present by this method, or others, there is nothing to prove that it always acts the same way. For example, when a very dilute solution is used, it acts on several mechanisms in one way, and when concentrated solutions are used an opposite effect is obtained. In experiments, moreover, the adrenalin is used often in greater concentration than that in which it exists in the blood. Work done by Doctor Macleod two years ago proved that hypersecretion of adrenalin cannot alone produce some of those results which are supposed to be most typical of its action. For example, the state-

ment is made that when the splanchnic nerve is stimulated, there is an increased discharge of glycogen from the liver because more adrenalin is produced.

When the nerves between the adrenals and the liver are cut, however, there is no such increased conversion of glycogen into sugar. Yet this is cited to prove the hypersecretion of adrenalin.

Commercial adrenalin is used in the above experiments as the standard against which the blood is compared. The comparison is, however, untrustworthy, because of the presence in blood of substances having opposite actions to that of adrenalin. Furthermore, there may be numerous substances in the blood which may neutralize adrenalin in the intact animal body. It is said that section of the splanchnic nerve caused no effect in six rabbits observed, except convulsion in one of the animals after some days. The splanchnic, however, supplies all of the abdominal viscera and the effects of its action may be legion.

Recent work throws considerable doubt on the existence of such a condition as hyperthyroidism. The relation between the muscles and the brain admits of several interpretations. Thus when curare is administered, the animal becomes incapable of maintaining its body temperature because there is a cessation of muscular action. Further the cerebellum in a dog may be removed without any change in the body temperature. If these facts be true, how can we say that the brain is the prime factor in the kinetic system and in the development of fever?

Mr. Zucker said in discussion that there are five principal methods which have been used in adrenalin testing. Using them for assaying relatively pure adrenalin solutions they will give results which agree very well with each other. Using them for testing the presence of adrenalin in blood, however, there are marked variations between them, on account of other substances in the blood which affect the various methods in a different way and to a varying extent.

The most variable of these methods, probably, is the intestine method, which was used in the experiments under discussion. Extreme caution is to be exercised in interpreting the results. If the intestine is used, it must, certainly, as shown by Doctor Stewart, be used in connection with the uterus. Most workers have discarded the intestine in favor of some of the newer methods.

The response of the intestine to blood and other fluids is quite variable. Besides adrenalin there are many substances which affect the time of the preparation. Among these are the sympatho mimetic substances of Barger and Dale, some which are known to occur in animal tissues. Besides these definitely isolated substances there are many entirely unknown factors which influence the tone of such intestine preparations.

For example, a slight difference in technic may influence the result, obtained when blood serum is applied to the intestine. When the serum was first diluted with four volumes of Locke solution and then heated to coagulate the proteins, it was found to give a reaction similar to normal serum. When, however, it was first heated and then diluted it was found after a slight transient rise, to cause a marked fall.

The condition of the intestine at the time the test is made is important. To compare two results they must have been obtained with the intestine in the same condition. In the technic of these experiments this is impossible, since different sera are applied to the intestine successively without washing. The fall obtained after the application of serum, following the previous application of another serum, might be explained on several bases. Rona and then Kirch have shown that the tone of the intestine remains normal only when the hydrogen ion and carbonate ion concentration is approximately the same within very narrow limits. Any blood after it is shed, shows a change in concentration of these ions.

Mr. Zucker asked Doctor Hitchings what evidence he had that after twenty minutes, adrenalin was oxidized in the blood. It seems necessary therefore to consider whether the difference in the action of the blood

immediately after defibrination and twenty minutes later may not be due to such changes.

T. W. Todd said that he noted Doctor Crile had included in his preliminary remarks at least one degenerate type of animal form (instancing the Squid) in comparison with still active forms. He rose, however, in connection with considerations of human rather than of comparative anatomy.

Anatomical investigation shows that effective section of all the adrenal nerves close to the gland without entirely removing the adrenal itself, must result in such disturbance of the organ and its blood supply that gangrene of the adrenal would result. If on the other hand the splanchnic nerves are divided, the whole of the Chromaffin-sympathetic system is thrown out of gear, at least for a time. Thus one would require further evidence to prove that loss of pure adrenal function is alone responsible for the results of the operation. Moreover, many investigators have shown that section of nerves to any part of the vascular system results in a local form of sclerosis, the very condition which section of the adrenal nerves was intended to obviate or cure.

In connection with the patient to whom reference had been made, Doctor Todd asked Doctor Crile whether the stated post-operative fall in blood pressure might have been due to the type of diet or other conditions and not directly to the operation.

C. F. Hoover in answering the question said that the patient referred to, had had no disease associated with hypertonus of the cardiovascular system, such as arterio sclerosis, but was suffering with obliterating endarteritis of the veins as well as of the arteries. The patient suffered from these, not from hypertonus, if this was the object of the operation.

F. W. Hitchings in reply expressed the opinion that in the light of the many experiments done and large amount of evidence submitted by Doctor Crile's laboratory, Doctor Macleod's point, that he had not yet seen evidence presented that the brain cells furnished indication of work done by the body, seemed at least to indicate lack of familiarity with this work. The work of Nissl and many other brain cell investigators was *qualitative* only, while the method used in this laboratory has for its most important feature the *quantitative* study of brain cell changes. When many experiments done under the same general conditions give an approximately similar percentage of active fatigued and exhausted Purkinje cells, the evidence should be sufficient, that the changes thus classified show work done.

As regards Doctor Macleod's question as to the composition of the epinephrin used in the experiments, it may be said, that in the sixty-six experiments reported that the only epinephrin used was that furnished by the animals, themselves. The five contradictory experiments reported, cannot be accounted for, but their number is small in comparison with the number of experiments done.

To the suggestions made by Doctor Macleod and Doctor Todd, that in cutting the nerve supply, the thirty odd nerves which have been identified as supplying the adrenals, may not all have been included, it may be asked, how was it possible that removing the adrenals in toto could produce the same effect as cutting the nerves which happened to be cut? The mere fact that no reactions were obtained when the nerves were cut would in itself suggest that the operation was adequate.

As regards the presence of accessory adrenals in the rabbit, no rabbits were included in the sixty-six experiments. The nerve supply of five rabbits were cut on each side, but, as was said in the body of the paper, the experiments have been too recently done to be conclusive even supposing that the negative search for accessory adrenals was thoroughly made.

The work may be summarized in this way: sixty-one out of sixty-six carefully checked experiments showed the presence in the blood of

an oxidizable substance (or substances) which produced no reaction when the adrenals were removed or their nerve supply cut. If this substance was not epinephrin, we feel that the burden of proof rests on shoulders other than ours.

J. B. Austin agreed that it was true that Nissl has retracted some of his former statements in regard to the chromatic material of the cell. Hodge, who first brought attention to these changes in 1892, was also discouraged by criticism. There is, however, an almost unanimous agreement that changes in the chromatic substance follow functional states, and we have tried to apply a quantitative method to this fact. Ewing in 1890 showed that chromatolysis was caused by tetanus and Dolley in an exhaustive study of measurements found that marked changes in the size and nuclear-plasma relation took place in many functional activities.

We have dealt with the chromatic changes only, and are certain that there is a loss of Nissl substance or a noticeable change in the stainability of the cells as a result of the various stimuli given in the experiments. The nature and cause of this change we do not attempt to state, as the problem is one which the micro-physicists will have to solve.

H. G. Sloan asked Doctor Macleod in rebuttal how he was sure that he had used an adequate stimulus of the distal end of a cut splanchnic to get adrenalin in the blood following this stimulation.

Doctor Macleod answered they had tested for the adrenalin using both the rabbit intestinal test as well as the rabbit uterus test. Moreover, they had controlled their experiment by watching the change in blood pressure.

Doctor Sloan inquired whether in stimulating the cut splanchnic there might not be other factors rather than the presence of adrenalin to cause the change in blood pressure and if Doctor Macleod was satisfied to call the substances adrenalin on basing his deductions on the tests that he used.

Replying to Mr. Zucker as to the question of using more control with the rabbit intestinal test for adrenalin, he said that each experiment was done with an entirely new strip of rabbit's intestine, that had never been used before.

In the final summary Doctor Crile said that logical deductions from established facts and the presentation of new facts are the only criteria upon which criticism can be based. On this basis, there seems to be nothing left for me to say in closing this discussion. There has been no new fact presented, there have been no deductions made of established facts that in any way invalidate what has been presented by my associates and myself. The quoting of opinions of others is of little moment if those opinions themselves are under fire. As to whether or not the establishment of the Kinetic system will be an advantage must rest upon its clinical value after it survives questions from many clinical and experimental viewpoints. If it serves as a key, as it apparently may to an explanation and possible control of a certain number of diseases, then it matters not on what academic ground the Kinetic system may stand.

The quaint notion of Doctor Todd as to the future hopes of the squid seem hardly to belong to this discussion. The dead house impossibilities of Doctor Todd are already operating-room accomplishments.

As to Doctor Hoover, until it is proven that local cardio-vascular disease, such as that of the brain, of the abdominal and thoracic aorta and of the large vessels of the extremities is not due to a common cause, then there can be no ground for making an objection to treating a case suffering with the disease now known as thromboangietis obliterans, as a so-called cardiovascular disease. Inasmuch as this disease will be discussed more at length later, ample time will then be given for its fuller discussion.

In conclusion I must thank most cordially my friends for taking the trouble to consider the points my associates and I have made in the presentation of a long research which we trust will be soon published in the form of a monograph.

**CLINICAL AND PATHOLOGICAL SECTION.**

The ninety-fifth regular meeting of this section was held at the Cleveland Medical Library, Friday, October 3, 1913, with C. Lee Graber chairman pro tem.

The following nominating committee was elected to report in November: Chairman Dr. R. K. Updegraff, Dr. Wm. B. Chamberlain, Dr. E. O. Houck, Dr. A. S. Storey, Dr. H. A. Berkes.

The regular program was as follows:

**1, Report of Case of Banti's Disease with Splenectomy, by F. C. Herrick.**

The speaker laid special stress in his case report on the unexplained fever which had occurred a number of years before, to the absence of malaria, lues or the alcoholic habit, the development of primary splenic enlargement, the leucopenia before operation, the leucocytosis after operation of a lymphocytic type and the marked improvement of the patient after splenectomy. It has required as long as five years for the re-establishment of the normal differential leucocyte count in cases reported by Banti, and others.

H. L. Sanford in discussion said that he had been associated with two cases of Banti's disease within the last two years in both of which the spleen was later removed. Both cases showed a marked leucopenia prior to operation. Following the operation the leucocytosis in one case reached 45,000, and persisted for a long time. Prior to operation both cases presented markedly bronze skin and large spleens. Both made good recoveries.

**2, Treatment of Infantile Paralysis, by G. I. Bauman.**

The speaker said that in the acute stage of infantile paralysis, rest, ice bags to the spine and catharsis were conceded to be the best treatment. The patient should be kept on his abdomen as much as possible and urotropin should be given, although the efficacy of the drug was somewhat in doubt. When on his back, the patient is best supported and kept quiet by lying in a plaster bed. A month or two of fixation is probably sufficient, for, to prolong it would tend to increase muscular atrophy. One can be guided in this by the muscular soreness.

Active measures should be instituted as soon as the muscular soreness disappears, to restore muscular activity. Contractures should be watched for and proper splints applied to prevent deformity. Massage should be started and proper braces applied to encourage the freest possible use of the paralyzed part. Much can be accomplished by the use of special contrivances such as the trapeze and special playthings to encourage use of the affected muscles. Electricity may be of some benefit. These measures should be persisted in for from one to two years from the date of onset.

In the stationary period after all improvement has ceased, efforts should be made to utilize all existing muscles to the best advantage. To this end tendon transplantation, tendon lengthening, tendon shortening, arthrodesis, silk ligaments, removal of skin areas, nerve grafting, and removal of bone and osteotomy have been done.

W. G. Stern in discussion, agreed with the points raised relative to orthopedic treatment and the after effects, but declared that he had a fixed idea relative to the prevention of deformity. It is possible to allow patients in sanitariums or those under special care to use their limbs to a maximum and still prevent deformity, but this is impossible in the ordinary home where the majority of cases occur. The dorsal flexors of the foot constitute the group of muscles most frequently paralyzed. The force of gravity and other causes allow the foot to drop down and talipes equinus results, unless there is immediate attention. The weight of the bed clothes adds further to the deformity, no wire screen being used generally to support them. The tendo achilles gives way early together with other muscles and severe club foot results. If the patient is



allowed to walk and exercise his muscles, severe deformity of the foot and knees follows. The physician should insist on a longer rest in bed than that advocated in the paper, the part being held in an overcorrected position. At the same time by exercise, massage and the use of the interrupted Galvanic current, the normal position should if possible be made permanent. The Faradic current for use in this connection is useless.

### 3, Continued Fever in Children, by John Phillips.

The speaker said that in the treatment of various disorders in children, one of the most puzzling problems that confronts the physician is the determination of the cause of continued fever. To determine the condition present, that is causing the continued fever, a careful history and physical examination is essential. It seems scarcely necessary to emphasize the examination of the ears and urine and yet nothing is so frequently neglected.

The difficulty of obtaining in the ordinary way a specimen of urine in a baby, probably accounts for the neglect of this part of the examination and yet this is easily overcome by the use of a small catheter, which should always be a part of the physician's diagnostic equipment. Blood examination is also necessary to clear up the diagnosis of obscure conditions, particularly the anemias.

The most common causes of continued fever in childhood are: general infectious diseases, infections of the nose with its accessory sinuses, infection of the ear and tonsils, oral infections, glandular inflammations, diseases of the lungs and pleura, chronic endocarditis and pericarditis with effusion, chronic appendicitis, constipation, colitis, starvation, infections of the urinary tract and vagina, diseases of the bones and joints, anemic conditions, heat congestion as due to insufficient radiation, chronic diseases of the brain and meninges.

R. K. Updegraff in opening the discussion commended the use of the Diazo reaction in distinguishing between a toxemia and an infection. A negative result means nothing but a positive test is evidence against the existence of a toxemia.

J. E. Tuckerman said that temperature was often due to the re-lighting up of old endocarditic trouble. Pus infections anywhere may show symptoms at the heart, the central pumping station.

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## COUNCIL MEETINGS.

The regular meeting of the Council was held Wednesday, September 24, 1913, the President, H. L. Sanford, in the chair.

The minutes of the last meeting were read and approved.

On motion the following were elected to Active Membership: Harold A. Budd, Joseph Kurlander, Jos. B. Kollar, Hugh J. Leslie.

The names of the following applicants for Active Membership were ordered published: Samuel B. Cohen, Rudolph Engel, Kent K. Hastings, Leonard Ravitz, F. W. Riley, John S. Suva.

The following applications were referred to the Membership Committee: J. C. Carothers, W. O. Ebersole, John Alexander Hunter.

Upon motion by Dr. Updegraff, seconded by Dr. Ford, the secretary was directed to discontinue the inquiry relative to the appearance of physicians' names in the daily press. It was clearly shown that such appearances are considered an annoyance and are discouraged by members of the Academy.

Dr. Storey moved that the secretary send to physicians whose names appear in the daily press, a letter requesting them to write a personal protest to the editor.

Dr. Updegraff moved that the Civic Committee be directed to bring in such manner as they deem advisable the data obtained by the inquiry to the attention of the editors of the local newspapers.

The regular meeting of the Council was held Wednesday, October 15, 1913, with the President, H. L. Sanford, in the chair.

The minutes of the last meeting were read and approved.

H. V. Riewel and C. C. Patton were transferred on request to non-resident membership.

On motion J. Goldfinger was reinstated as an Active Member of the Academy.

The name of the following applicant for Active Membership was ordered published: Harold Feil.

The application of J. C. Carothers was laid on the table for the present.

The secretary was instructed to inform W. G. Ebersole that his application for membership was acted on unfavorably.

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## BOOK REVIEWS

**A Treatise on The Diseases of Women.** By Palmer Findley, B. S., M. D., Professor of Gynaecology, College of Medicine, State University of Nebraska, et cetera. 954 pages, 38 plates and 632 engravings. Cloth, \$6.00 net. Lea and Febiger, Philadelphia and New York, 1913.

This is a strictly up-to-date and valuable work. The author tells us it is an outgrowth of his "Diagnoses of Diseases of Women," but this volume covers the whole range of its subject—not merely diagnosis, but also pathology and treatment. The work is possibly a little too large to make it thoroughly satisfactory as a student's text-book, but for the practitioner or specialist we know of none better.

The complete and accurate treatment of such subjects as ectopic pregnancy, deciduoma malignum, the causes and treatment of dysmenorrhoea, and especially gonorrhoea in the female, leaves little to be desired.

The work impresses one as presenting the very latest word on the subjects treated. Such things as the recent views in regard to hypertrophy of the endometrial glands, and the use of vaccines in the treatment of gonorrhoea, illustrate the freshness of the material. The sections on medical treatments, and on post-operative complications are especially valuable.

One may not agree with the author on all points, as for example, his sweeping condemnation of stem pessaries, or his approval of iodine for preoperative skin preparation. Good reasons are, however, offered for his opinions.

A few typographical errors but prove the rule that this is a very well edited volume. For example, on p. 520 we find "extracongugal," on p. 251, "superitoneal;" and on p. 195, we are told to "lower" the temperature from 75° to 85°.

The book will prove a most valuable addition to the library of anyone interested in gynaecology.

J. T. S., Jr.

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**Therapeutics of the Gastro-Intestinal Tract.** By Doctor Carl Wegele. Adapted and edited, with additions on the diagnosis of the diseases of the esophagus; diagnosis of the diseases of the gastro-intestinal tract duodenal tube and its uses; diseases of the pancreas, and X-ray examinations of the gastro-intestinal tract. By Maurice H. Gross, M. D., attending gastro-enterologist to the Har Moriah Hospital, and I. W. Held, M. D., attending physician to the Har Moriah Hospital. Cloth, 313 pages, with 52 illustrations in the text and two figures in colors on one plate. Price \$3.00. Rebman Company, Herald Square Building, New York.

The general practitioner will find in this book many helpful hints and directions for the treatment of the common disorders of the gastro-intestinal tract. In many of the diseases discussed a complete outline

of the dietetic, physical and hygienic treatment, in short systematic arrangement, will be found. This arrangement should appeal strongly to those having too little time to consult the larger and more complete works upon the subject. For those especially interested in the physiology, pathology and chemistry of the gastro-intestinal system, including theoretical consideration and discussion, the more voluminous works or monographs on smaller divisions of the subject are better suited. In the book at hand, much of scientific interest has been omitted to make way for the practical side. The translators have added to the original work of Doctor Wegele, chapters on the diseases of the esophagus; X-ray examinations; duodenal tube; diagnosis and treatment of the diseases of the pancreas; parasitic diseases, and diseases of the intestinal blood vessels. These chapters have received the approval of the author of the original work in a short preface to the translation. Although the added chapters are rather brief for adequate treatment of such large subjects, an abundant number of references are given for those wishing to pursue the subjects farther. It is rather interesting to note that unlike most German works very frequent citations are made to American literature on this subject.

The book no doubt will in the near future pass through a second edition; in the revision several minor changes might be suggested, viz., that the bibliographic style of the Surgeon General's catalog or that of the Index Medicus be followed; that the very numerous typographical errors be corrected, and that an invariable capitalization of the species and uniform use of the lower case for the genus in zoological nomenclature be used.

H. O. R.

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**Gesammelte Werke von K. G. Lennander.** Im Auftrage der Universität zu Upsala. Unter Mitwirkung von Doctor K. H. Giertz, Professor Doctor K. Petré, Doctor A. Petterson, Doz. Doctor Fr. Zachrisson und Professor Doctor Hj. Ohrvall. Herausgegeben von Doctor Gustaf Ekehorn, Professor der Chirurgie an der Universität Upsala. Paper, three volumes of respectively 333, 667 and 333 pages. Price of three volumes, Kr. 27; Mk. 30. Almqvist & Wiksells Boktryckeri, Upsala and Stockholm, 1912.

Lennander, born in 1857, became Professor of Surgery at the University of Upsala at the age of 32, and died of heart trouble at the age of 51. These three volumes are witness to the large amount of work he compressed in this small time. He was a man who *lived* to the fullest extent, whose intensity of work was of the highest, whose zeal for science was of the greatest. On his last sick bed, his right arm becoming paralyzed, he learned to use his left, and continued his writing to the end. He was a lovable man, as witness for which stand these three volumes of collected writings issued by the University of Upsala. A part of the articles are in German, a part in French and a great number in English. A detailed review of this large series of writings is, of course, impossible in this place. Many of the articles are naturally of only historical interest. And many are as fresh as if written today. Of special interest to the reviewer is his work on the sensibility of organs and tissues, especially the abdominal viscera. Here he made real advances and incited many others to take up a scientific problem which, while not yet solved in its entirety, has extended our knowledge to a great degree.

But aside from the value of the book as a store house of facts, it gives us an insight into the character of a great man. Lennander was a real specialist; he did not graft on advancing knowledge as a non-productive parasite; but was deeply convinced that with the privileges of specialism goes the duty of extending the boundaries of knowledge in that specialty. These books prove that even yet real medical science and real medical practice may be combined to the betterment of both. No better stimulus to more and better work could be had than a perusal of these volumes.

C. H. L.

**The Principles and Practice of Gynaecology.** By E. C. Dudley, A. M., M. D., Professor of Gynaecology in the Northwestern University Medical School, Chicago. Sixth edition, revised. Octavo, 795 pages, 439 illustrations; many in colors and 24 full-page plates. Cloth, \$5.00 net. Lea and Febiger, Publishers, Philadelphia and New York, 1913.

This new edition of a well-known book is the result of a thorough revision, paragraph by paragraph of the former work. Much new matter has been added, in addition to changes in that already present; so that the work before us gives the latest developments of gynaecology. For example, a number of new drawings illustrate well the steps in the newer plastic operations on the perineum.

The author is far from being a mere compiler of the work of others. Some operations of his own are described which may possibly not yet be accepted among the dogmata of the specialty, but which are most interesting and promising. Such are his methods of operating upon ureterovaginal fistulae, and his end-to-end approximation of the broad ligaments in decensus uteri. The operation described for incontinence of urine in women is most suggestive.

As a text-book for students or practitioners, this work is sure to retain its high position. In clearness of description, orderly arrangement, beauty of illustration, and general typographical excellence, it is worthy of high praise.

J. T. S., Jr.

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**Golden Rules of Surgery.** Vol. I of the Golden Rule Series. Especially intended for students, general practitioners, and beginners in surgery. By Augustus Charles Bernays, A. M., M. D. (Heidelberg), M. R. C. S. (Eng.). Second edition, revised and rewritten by William Thomas Coughlin, M. D., Assistant Professor of Surgery, Chief of Clinic, St. Louis University Medical School, St. Louis, Mo. Cloth, 281 pages, \$2.25. C. V. Mosby Company, St. Louis, 1913.

This small book of 265 pages consists of a collection of short rules of procedure in surgical diagnosis and therapy, arranged systematically, and covering pretty much the whole field of general surgery. The rules are short and to the point e. g., "Always be on the watch for renal as well as duodenal complications in burns"; "Always bear in mind that gummata grow anywhere and are often excised under the diagnosis of sarcoma"; "A chronic ulcer on the face is leucic, malignant or tubercular," et cetera, et cetera.

The selection is good and the expression is forceful. Of course the criticism might be made that in endeavoring to make the rules stand out emphatically the truth is to some extent sacrificed. But it is to be remembered that we should not consult such a book with the hope of gaining knowledge new to us, but from the desire to bring our attention to a focus on facts already learned by more extensive and detailed study and experience; facts which are apt to be submerged in subconsciousness from the very fact that we do not, or cannot think of them by themselves, but as fused parts which have been integrated into a highly complex and inter-related system. Such a book as this divides our knowledge into smaller units. It indexes and causes to stand out by themselves the many facts of our experience, much as does the guide card in a card index. Read in the right spirit, a book of this kind becomes valuable.

C. H. L.

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**Practical Medicine Series, Vol. IV, 1913 Gynaecology.** Edited by Emilius C. Dudley, M. D., Professor of Gynaecology, Northwestern University Medical School, and Herbert M. Stowe, M. D., Associate in Gynaecology, Northwestern University Medical School. Price, \$1.35. The Year Book Publishers, Chicago.

This is an excellent little review of the world's gynaecological literature of the past year. These volumes have been so frequently reviewed that it is unnecessary to speak of the character and the purpose

of the series of which this book is a member. Suffice it to say that the plan of the work and the general editing is the same as usual.

One is impressed with the fact that the past year has seen no great or striking advance in the gynaecological field. Some good solid work has been done. That of Sampson, upon the blood-supply in uterine myomata is of great theoretical and practical value. The vast monograph upon carcinoma of the uterus, issued by Schottlander and Kermauner (Berlin), and based upon a most exhaustive study of 677 cases, is probably the finest single achievement of the year.

Progress has this year been made in our ideas about its endometrium as a result of the continued work of Hitchmann and Adler. Up to date, they have given us some forty illuminating contributions showing that many forms of so-called "endometritis" are simply changes due to the menstrual cycle.

Some statements are slightly misleading, though the editors are not responsible for the writings of others. For example Faure (p. 69) gets credit for a bisection of the uterus apparently the same as that we saw H. A. Kelly employ as long ago as 1906. A few typographical errors have crept in. For example, take the absurd statement on p. 122, "Cancer of the tubes occurred in three-fourths of all women who had been sterile or had only one child." Of course, cancer of the tubes is one of the rarest of gynaecological diseases.

J. T. S., Jr.

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**Skin Grafting.** For Surgeons and General Practicioners. By Leonard Freeman, B. S., M. A., M. D., Professor of Surgery in the Medical Department of the University of Colorado, et cetera, Denver, Colo. Cloth, 139 pages, 24 illustrations, \$1.50. C. V. Mosby Company, St. Louis, 1912.

A book of 139 pages and 24 illustrations. It contains considerable allusion to the history of the subject; the technique of the various methods is well given; grafting in various special pathological conditions is considered; and a few pages are devoted to histology and pathology. The book is hardly extensive and intensive enough to be classed as a monograph on the subject, but as a brief and reliable account of skin grafting it is to be recommended.

C. H. L.

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**A Clean Record in the Canal Zone.**—Those who have been following the remarkable record of the work of sanitation of the Isthmian canal, and have watched the gradual reduction of the death-rate and the elimination of preventable disease, have hoped that before the monumental work of constructing the canal was finished it might be possible for Colonel Gorgas to present a report that would be clean as far as death from disease was concerned. The report of the Department of Sanitation for the month of August, 1913, just received, shows that during that month there were thirty-nine deaths from all causes among the employees of the canal commissioners. Of these, one, a Peruvian, died of malaria; another, a Spaniard, of alcoholism, and the third, a Greek, of appendicitis. The only deaths among white Americans which occurred during the month were two from violence, one due to an accident on the railway and the other to an accident in the quarry. Among the 12,481 white American men, women and children on the Isthmus connected with the commission—that is, employees and their families—not a single death from disease occurred. The exodus from the Canal Zone has already begun; those employees whose work has been completed are returning to the United States with their families. The number of the American citizens resident in the Canal Zone will probably decrease steadily in the future. It is a fitting climax to the work of Colonel Gorgas, which has challenged the admiration of the civilized world, that the month which probably marks the high tide of American occupancy of the Canal Zone should have passed without a single death from disease in the American colony.—*J. A. M. A.*

## ACKNOWLEDGEMENTS

Anatomy, Descriptive and Applied. By Henry Gray, F. R. S., Fellow of the Royal College of Surgeons; lecturer on Anatomy at St. George's Hospital Medical School, London. New (English) edition, thoroughly revised and re-edited, with the Basle Anatomical Nomenclature in English, by Robert Howden, M. A., M. B., C. M., Professor of Anatomy in the University of Durham, England. Imperial octavo, 1407 pages, with 1126 large and elaborate engravings. Cloth, \$6.00 net; leather, \$7.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

The Practical Medicine Series, Vol. VI, 1913, General Medicine. Edited by Frank Billings, M. S., M. D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, A. M., M. D., Professor of Medicine, Chicago Clinical School Series 1913. Price, Volume \$1.50. Price, Series, \$10. The Year Book Publishers, Chicago.

Economic Influence on the Medical Profession of the Periodic Examination of Insured Lives by Eugene Lyman Fisk, M. D., Medical Director Postal Life Insurance Company, New York.

Annual Report of the Board of Regents of The Smithsonian Institution, showing the operations, expenditures and conditions of the Institution for the year ending June 30, 1912. Government Printing Office, Washington.

Mortality Statistics 1910. Eleventh Annual Report Department of Commerce, Bureau of the Census. Prepared under the supervision of Cressy Z. Wilbur, M. D., Chief Statistician for Vital Statistics. Government Printing Office, Washington.

Handbook of the Mental Hygiene. Movement and Exhibit. Illustrated. Published by the National Committee for Mental Hygiene. New York City.

Proceedings of the Mental Hygiene Conference and Exhibit. Published by the Committee on Mental Hygiene of the State Charities Aid Association, New York City.

Northwestern University Bulletin Medical School Announcement for 1913-1914. Published by the University.

The Registration of Vital Statistics and Good Business. An address delivered before the Annual Conference of Health Officers of the State of Indiana, Indianapolis, May 13, 1913, by Louis I. Dublin, Ph. D., Statistician, Metropolitan Life Insurance Company, New York.

Medical Inspection of Schools. By J. W. Schereschewsky, Surgeon, United States Public Health Service. Reprint Number 142 from Public Health Reports. Government Printing Office, Washington, D. C.

Paratyphoid Fever. A report of an outbreak in a Hospital at Roanoke, Virginia. By L. L. Lumsden, Surgeon, United States Public Health Service; A. W. Freeman, Assistant State Health Commissioner of Virginia, and W. B. Foster, Health Officer, Roanoke, Virginia. Reprint No. 129, from the Public Health Reports. Government Printing Office, Washington.

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MEDICAL NEWS

**Clinical Lectures on Diseases of the Skin.**—The Governors of the New York Skin and Cancer Hospital announce that *Doctor L. Duncan Bulkley* will give a fifteenth series of *Clinical Lectures on Diseases of the Skin* in the Out-Patient Hall of the Hospital on Wednesday afternoons, beginning November 5th, 1913, at 4:15 o'clock. The lectures will be free to the Medical Profession on the presentation of their professional cards.

**Railway Surgeons Elect Officers.**—At the tenth annual meeting of the American Association of Railway Surgeons, held in Chicago, October 15 and 17, the following officers were elected: President, Doctor D. S. Fairchild, Clinton, Iowa; vice-presidents, Doctors E. S. Judd, Rochester, Minn., R. A. Douglas, Collinsville, Okla., and I. L. Parsons, Brookhaven, Miss.; secretary-editor, Doctor L. J. Mitchell, Chicago (re-elected); treasurer, Doctor H. B. Jennings, Council Bluffs, Iowa, and members of the executive board, Doctors S. C. Plummer, Chicago, and D. Y. Roberts, Louisville.

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**Greene County Must Pay Its Share.**—The supreme court has decided, in the joint county tuberculosis hospital case, that Greene County must pay its share of the cost of the hospital, which was built by Champaign, Clarke and Madison counties. This share amounts to \$6,254.15.

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**Rendezvous for Physicians.**—Members of the Dayton Academy of Medicine are fostering a movement to secure a clubhouse and headquarters for physicians of the city, to be a common rendezvous for medical men of all schools, and to provide, in addition, a clinical laboratory.

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**New Society Organized.**—Members of the medical profession of Tiffin, met on September 30, and organized the Academy of Medicine of Tiffin, with Doctor Harmon B. Gibbons, temporary chairman, and Doctor John A. Gosling, temporary secretary, and an initial membership of thirteen.

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**Personal.**—Doctor Christian B. Holmes has been appointed dean of the medical department of the University of Cincinnati, succeeding Doctor Paul G. Woolley.—Doctor Theodore Wenning has returned after service in a Servian military hospital during the Balkan war.

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**Hospital Ready.**—The new Cincinnati Hospital will be ready for public inspection, October 19 and 26.

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**Sanatorium Notes.**—The ten-day campaign in Aurora, to raise \$100,000 for St. Joseph's Sanatorium, was successful and work on the new buildings will be started in the early spring.

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**New Officers.**—Muskingum County Medical Association: President, Doctor Wilbert C. Bateman; secretary, Doctor John R. McDowell, both of Zanesville.

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**Personal.**—Doctors Paul Morrison and D. W. Medill, Tiltonsville, who sustained injuries in an automobile accident, recently, are reported to be doing well.

Doctor R. DeWitt Robinson, Akron, was operated on for appendicitis at Grace Hospital, Cleveland, October 5.

The residence and office of Doctor Barnett E. Winters, New Straitsville, were burned, September 27, with a loss of \$2,500.

Doctor James A. Hubbell, Quincy, was seriously injured in a run-away accident, September 11.

Doctor Albert F. Spurney, Cleveland, has sailed for Europe.

Doctor John P. DeWitt, Canton, has returned from abroad.

**The "Friedmann Institutes."**—Once more it should be stated that the so-called Friedmann cure for tuberculosis is utterly discredited. All reliable reports regarding the treatment of patients by Friedmann's method seem to show either that it is actually injurious or else that it is less efficient than other well-known and less dangerous means of treatment. While attention has already been called to the facts, it is worth while again to remind our readers that: 1. Dr. Mannheimer reported on the results of eighteen cases in New York in which the Friedmann "treatment" was used, and stated that in not a single one of the eighteen cases was there definite improvement to date that could be attributed to the "treatment." 2. A committee of some of the foremost physicians of Canada was appointed to watch the patients inoculated by Dr. Friedmann in the Canadian hospitals. These physicians made a similarly unfavorable report. 3. Dr. Anderson, acting under the authority of the United States government, watched the progress of the patients treated by Dr. Friedmann in this country. He also gave an unfavorable opinion as to the effect of the treatment. 4. The Friedmann "treatment" has been condemned by German physicians generally. 5. A report from the Rhode Island State Sanatorium on the results in 120 patients treated by the Friedmann method states that the patients "have shown none of the immediate and wonderful results reported by Friedmann," but that, "on the contrary, about 17 per cent of the cases" are worse than they might have been expected to be under ordinary sanatorium treatment. This, and more is true, and yet the company which is exploiting this so-called cure is, apparently, able to find physicians who are willing to aid in this inhuman business. After all, this might be expected; it has always been possible to find men willing to do disreputable work, if sufficient financial inducements are offered. While we believe that the medical profession harbors but a small proportion of men of this type, it has some within its ranks who are willing to sell their birthright of professional decency for a mess of pottage. As has been previously said, the scheme of floating Friedmann institutes in different states successfully evades any reprisal on the part of the federal government. It therefore devolves on the various states to take such action as is necessary to prevent the heartless exploitation of the unfortunate consumptives within their borders.—*J. A. M. A.*

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**The State Board Quarterly.**—The first copy of the new *Quarterly*,<sup>1</sup> the official organ of the Federation of State Medical Boards of the United States, has just been received. It is published by the federation, the secretary being also the editor, and it is announced that "the *Quarterly* shall be the forum for the presentation and discussion of ideas on medical education by any one interested." The several articles from well-known writers on medical education and medical licensure are printed in large, clear type; there are numerous interesting excerpts from important articles on medical education, and the news notes show care in selection. This number also contains a list of members, reports of meetings and the constitution and by-laws of the federation. We bid the *Quarterly* welcome to the ranks of medical periodicals, and wish for it a most influential existence. Its greatest influence, however, will depend on whether or not it recognizes its chief function as an instrument for the exchange of information which state board members need. Much is already being published regarding medical education—all medical journals are naturally interested in that. But regarding the problems of medical licensure in this country, this publication has a particular and a most important field in which it can be a power for good. To point out the needs in medical licensure, to suggest remedies, to bring about a closer co-operation between state licensing boards and to secure a more equally effective administration of all medical practice acts—this is clearly the chief field of the new *State Board Quarterly*.—*J. A. M. A.*



# The Cleveland Medical Journal

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VOL. XII

NOVEMBER

NO. 11

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## METAPLASTIC BONE AND MARROW FORMATION IN VESSEL WALLS

By H. O. RUH, M. D., Cleveland.

(From the Pathological Laboratory of Lakeside Hospital and The Babies' Dispensary and Hospital, Cleveland, Ohio.)

The occurrence of metaplastic bone formation has not attracted the attention it deserves from pathologists. The literature on the subject deals chiefly with case reports, without adequate discussion of the histogenesis of the bone formation.

The knowledge of such occurrences is not widely disseminated, but the present wide use of radiography in the different forms of diagnosis and study are constantly bringing to light many examples of calcification and ossification in unusual situations. This is especially true in the numerous recent findings in the arteries and veins. Calcific deposits are very plainly shown in X-ray plates, the beaded type showing especially well, as in cases reported with excellent radiographs by Somerville (1) and by Beck (2). The latter in his examination could distinguish tissue of osseous structure. The changes occurred in the saphenous vein as well as in its early branches.

Medical literature contains a number of single case reports and discussions of "heteroplastic" bone formation, while not a few of the authors mention the occurrence of marrow. The majority of the standard works on pathology describe the condition, but very few discuss the mode of formation: a mention of a few of the sites, other than those in the vessel walls might be made: Muscle, Ponfick; Muscosa of the bladder, Morpurgo; laporatory scar, Askanazy; lung, Pollack, Poscharissky and Hewitt; pia and choroid, Virchow; pleura, Laboulin, Hurtado and Pollock; dura, Cruveillhier, Ruh; eye, by numerous authors, particularly Pagen-

stecker, Klevs, Knapp, Darby; stomach, Minkiewicz; liver, Cornil, Ranvier and Hewitt; lymph nodes, Pollack and Poscharissky; heart valves, by numerous authors; adrenal, Gierke; testes, Lezhneff.

Poscharissky (3), in examining calcareous foci, found bone formation in 60.7 per cent of the cases examined and bone marrow in all of these. However, if his definition of bone is as loose as his definition of bone marrow, we must allow some latitude for his statement, for his definition of marrow is that of a cellular granulation tissue. There is no doubt, however, that a more frequent close examination of calcareous deposits occurring in various organs and vessels will show the percentage to be much higher than usually supposed. Kryloff (4) in an able article esti-

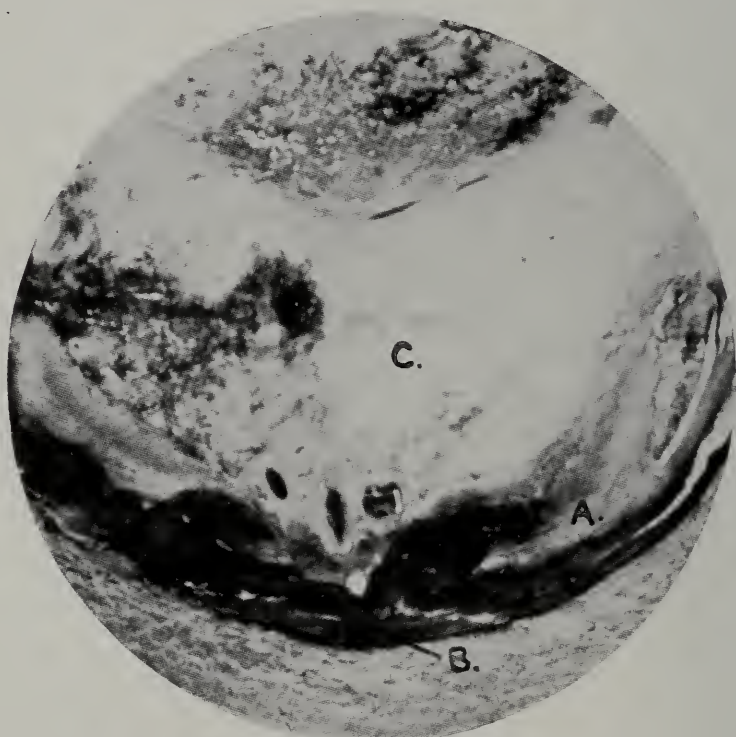


Fig. 1. Section through aorta and thrombus. A, bone; B, calcium deposit; C, thrombus Verhoeff's Stain x 10.

mates that 15-16 per cent of all cases of advanced arterio-sclerosis show bone formation. This would seem to conform more nearly to the observations of other authors.

Only a few of the case reports will be reviewed here.

Andral (5) in 1826 observed this condition in the aorta of a girl eight years old, five or six times in the aorta of adults between the ages of sixteen and twenty-four years, and once in the mesenteric arteries of a man under thirty years. He also mentioned a case of an ossified temporal artery in an infant fifteen months old

(recorded by Young) and an ossified aorta in a child three years old (recorded by Wilson).

Howse (6) in 1877 found in an axillary artery a focus of bone which he thought represented the media and sprang from an "altered condition of the middle coat."

Marchand (7) found in a crural artery with a calcified media, new vessels with absorption of the calcific material and a deposition of osseous tissue and the formation of a marrow space around the vessels.

Paul (8) in 1866 demonstrated before the London Pathological Society a portion of a sclerotic tibial artery in which there was a focus of osseous tissue in the intima.

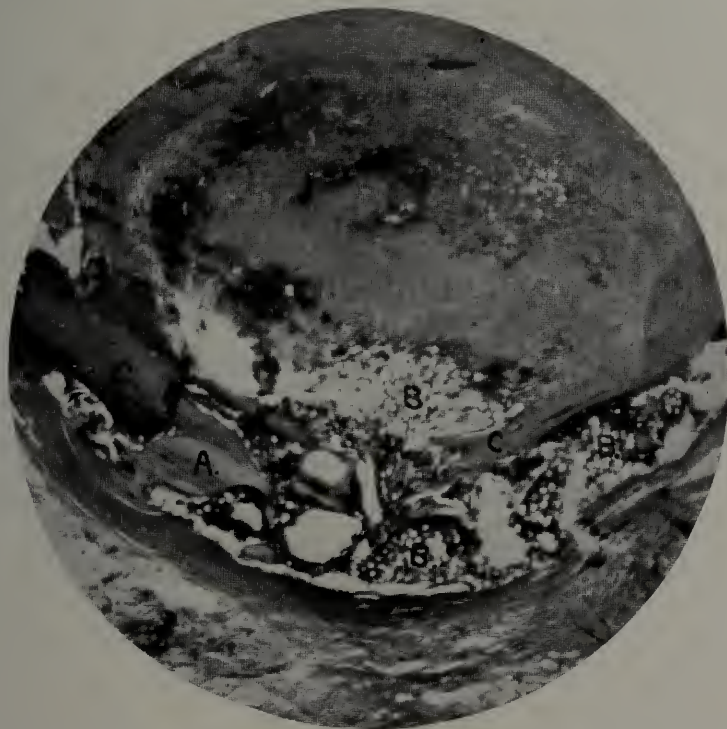


Fig. 2. Section taken from a position slightly nearer bifurcation of aorta; showing at A, bone; at B, marrow; at C, modified connective tissue. Hematoxylin and eosin Stain x 10.

Cohn (9) found a calcified aortic valve with true bone near the calcified material; and also three cases of bone formation in the media of the crural artery.

Rosenstern (10) reported bone formation in one calcified aortic segment and bone and cartilage in another leaflet of the same valve.

Monkeberg (11) reported two cases of bone formation in the aorta.

Bunting (13) described a new formation of true bone in the

much thickened intima and much atrophy of the media, with a thrombus of an aorta.

Von Schrotter (12) in 1901 found bone in an organized thrombus in the anterior tibial artery and also in another case in the intima of the crural artery.

Brueger and Oppenheimer (14) described bone formation in the plantar and peroneal vessels.

Satterlee (15) reports a very interesting case of bone formation in the aorta of a cockatoo. The whole of the vessel was apparently occupied by bone formation with true bone marrow. Bone absorption as well as bone formation was going on as evidenced by some typical Howship's lacunae. There was much calcium deposited in the media.

Harvey (16), while studying experimental arteric sclerosis following local irritation, observed in one specimen a formation of true bone in the media.

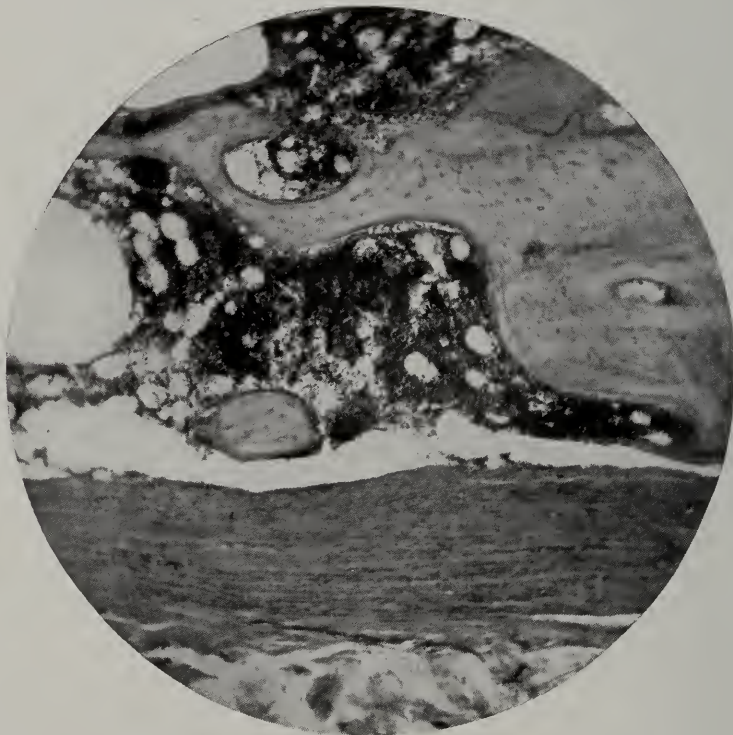


Fig. 3. Bone and marrow formation. Hematoxylin and eosin x 42.5.

The following case is of especial interest on account of the complete thrombotic occlusion of the lower portion of the abdominal aorta, as well as the formation of true bone with bone marrow in the aortic wall at the seat of the thrombus.

Anatomical Diagnosis: Lakeside Hospital Autopsy—No. 1383.

Chronic endocarditis with stenosis and insufficiency of the mitral and of the tricuspid valves; hypertrophy of the left heart and hypertrophy and dilatation of the right; moderate general arterio-sclerosis with quite marked sclerosis of the lower portion of the aorta; atheroma, atheromatous ulceration, and calcification of media; thrombosis of the aorta just above the bifurcation with extension of the thrombus into and completely occluding the common iliac arteries with a complete organization of the thrombus; ossification and the formation of bone marrow in the wall of that portion of the aorta in which the ossification has taken place; similar findings to a lesser extent in the iliac arteries; healed infarctions in both kidneys; chronic passive congestion of the liver, kidneys, spleen, intestines and lungs; cholelithiasis; hemangioma cavernosum of the pericardium; oedema and anasarca.

E. F. admitted to the Lakeside Hospital, January 22, 1913. Service of Dr. C. F. Hoover.

Clinical History: White, female, 58 years. Married.

Personal History: Had rheumatism at the age of 30 years.

Present Illness: At the age of thirty the patient had an attack of rheumatism from which she recovered with no cardiac symptoms, but about eight years ago she experienced cardiac distress. Since 1903 she has had several breaks in compensation. At the present time she complains of marked shortness of breath and swelling of the lower extremities. There has been at no time any bloody expectoration or pain in the chest.

Urine: Amber, Sp. Gr. 1022; acid; no sugar; heavy trace of albumin. A few epithelial cells in the sediment.

Sputum: Examination not made.

Feces: Examination not made.

Blood: W. B. C. 17,400.

Hb. 90 per cent.

Clinical diagnosis: Mitral insufficiency and stenosis with decompensation.

Autopsy: Eighteen hours post-mortem.

Inspection: Body of a well developed and well nourished white female aged fifty-eight (58) years. The post-mortem staining is very marked in the dependent portions. The neck, face and the lips are of a deep purple color. The rigor mortis is slight. The skin is thin and smooth and there are no pigmentations, eruptions, scars or icterus. The superficial lymph glands are not enlarged. The head is well formed and is covered by grey hair. The eyes are not sunken and the pupils are equal in size, regular in outline and concentric. There is no discharge from the eyes, nose, ears or mouth. The neck is rather thick and the superficial veins are greatly distended. The chest is of a peculiar shape; at the upper part it is normal, but at the beginning of the upper third there is a very prominent anterior bulging which involves the middle and lower thirds. The abdomen is rounded. The genitals are not remarkable. The upper extremities are not remarkable, but the lower extremities are very oedematous.

Section: Skin of the abdomen is thin, adipose tissue is very thick, light yellow, and moist. Muscles are light red in color. The peritoneum is glistening, but thicker and more opaque than normal. The peritoneal cavity contains about 1000 cc. of a clear yellowish fluid. The intestines lie in their usual position. The liver reaches

4 cm. below the costal margin of the mid-clavicular line. The other organs lie in their usual positions. There is a great deposit of fat in the omentum and in the retro-peritoneal space.

Chest: Skin, fat and muscles as in the abdominal wall. The sternum as described above. On opening the chest the heart is found to occupy a more central position than usual because of the enormous dilatation of the right heart. The lungs are compressed by the heart. There are no pleural adhesions and no transudate or exudate. The thymus is very small.

Pericardium: This contains some fat and is somewhat heavier than normal. A very remarkable condition is found in the pericardium. On that portion which lies over the anterior part of the heart and situated a little below the mid-line there is a dark bluish mass of distended vessels measuring 3 by 3.5 cm. These vessels are about the size of the radial artery and are bound together very closely (haemangioma cavernosum).

Pericardial Sac: This contains about 75 c. c. of a clear yellowish fluid in which is found an occasional strand of fibrin.

Heart: Weighs 675 gms. The right auricle and ventricle are greatly dilated and form the greater part of the organ. The right auricle contains a large chicken fat clot and a large amount of dark red, soft clot. The epicardium is smooth and glistening. Foramen ovale closed. In the right and the left auricular appendage there are firm mural thrombi. The endocardium of the remainder of the heart is smooth. The tricuspid valve measures 13.5 cm. in circumference. The cusps are thin. Pulmonary valve measures 8.5 cm., cusps thin. The mitral valve is represented by a slit-like aperture due to fusion of the cusps and dense fibrous tissue thickening. The cordae tendinae are short, thick and of a yellowish color. The papillary muscles are heavier than normal. The aortic valve measures 8 cm. in circumference and the cusps are thin. The myocardium is of a dark red color, cuts easily and measures in the left ventricle 20 mm. and in the right ventricle 7 mm. The coronary arteries are thin walled and patent.

Right Lung: Weighed 400 gms. The pleura is smooth and glistening. At the apex there is a slight increase in consistency. All portions of the lung are air holding. On section the apex is found to be of a deep red color and on pressure exudes a large amount of frothy red fluid. The remainder of the lung is of a lighter red color and does not exude fluid on pressure. The vessels and bronchi are not remarkable.

Left Lung: Weighs 475 gms. The pleura is smooth and glistening and the lung is air holding throughout.

Liver: Weighs 1650 gms., measures 27-23-8 cm. The right lobe is thicker than normal, but otherwise the organ is not remarkable in appearance. The edges are slightly more rounded than normal and of a finely granular appearance. The capsule is thickened and beneath it the organ is finely granular. The organ on section cuts with a moderate degree of resistance. The cut surface is of a light dull brown color and slightly granular. There is some congestion. The vessels and bile ducts are not unusual. There is a moderate increase in the fibrous tissue. The gall bladder is small, the walls are thickened and it contains 21 small concretions.

Spleen: Weighs 175 gms., measures 10.5-7.5-4 cm. The organ is of normal conformation, very firm and retains its shape. The capsule is thickened and smooth. On section the organ cuts with an increase in resistance. The cut surface is of dark red color and the Malpighian bodies are small and numerous. The trabeculae are prominent. The vessels are not remarkable.

Right Kidney: Weighs 165 gms., measures 10.5-5-4 cm. The perirenal fat is abundant. The capsule is greatly thickened and the surface is traversed by deep scars and is very irregular. The organ

on section cuts with an increase in resistance. The cut surface of the organ is of a greyish purple color and is traversed by numerous scars which run from the medulla to the cortex. The cortex measures 4 mm. in thickness, the medulla 1.3 cm. In the more normal appearing parts of the organ the architecture is normal. The fat of the pelvis is increased in amount. The capsule on being stripped from the cortex pulls small pieces of the parenchyma with it. The surface is very granular and the stellate veins are very prominent.

Left Kidney: Weighs 175 gms., measures 13-6.4 cm. It shows the same structure as the right on inspection and section.

Adrenal: Weighs 15 gm. Not remarkable.

Pancreas: The surface lobulation is more marked than normal and the organ is firmer than usual. It cuts with marked increase in resistance and seems quite fibrous.

Oesophagus: Not remarkable.

Stomach: The mucosa is thicker than normal and the vessels are greatly congested.

Intestine: There is marked congestion of all coats.

Uterus, Tubes and Ovaries: These show nothing unusual.

Aorta: The walls throughout the entire length are thickened and scarred and they show numerous atheromatous plaques, atheromatous ulcers and calcified areas varying in size from 2-1.5 cm. in diameter. Below the coeliac axis the sclerotic process is especially marked. The atheromatous plaques are larger and thicker and the calcific process is more extensive. Just above the bifurcation there is a large shelf of dense hard tissue with irregular edges projecting into the lumen. On the upper side of this is a greyish red thrombus which still more occludes the already much narrowed lumen. At about 1 cm. above the bifurcation of the aorta there is a very firm pinkish grey occluding mass which is firmly attached to the sides of the aorta. This thrombus extends downward into the common iliac arteries for a distance of 3 cm. in the left and 2 cm. in the right. The character of the thrombus is slightly different on the two sides. The right is evidently younger than the left. It is more pinkish in color, and not so dense in structure. The thrombus on the left has become nearly completely organized, is very dense, nearly white in color and cuts with much resistance. In fact the vessel suggests a fibrous cord. In the iliac arteries just below the thrombi the walls show a considerable degree of sclerosis.

## MICROSCOPICAL EXAMINATION

Heart: The epicardium is thin. The cells of the myocardium are much larger than usual, have large hyperchromatic nuclei, and stain well. The striations are very distinct and in places the cement lines are very distinct. Small areas show fragmentation of the cells. In a few places small areas of fibrous tissue can be seen.

Lung: The pleura is thickened in a few places. The vessels of the alveolar walls are congested and the alveoli in many places contain many erythrocytes. The alveolar walls are in most situations consid-

erably thickened. Here and there are found alveoli filled with a pink staining exudate in which numerous desquamated alveolar epithelial cells are found. The bronchi are not remarkable. In other sections where the oedema is not so marked and the alveolar walls are more distinct it is evident that they are considerably thickened. Several medium sized vessels are occluded by thrombi.

Liver: The capsule is thickened. The lobulation is very distinct, on account of the central congestion and the central compression of the liver cells. The fibrous tissue is a little increased. The parenchymatous cells at the periphery of the lobules are cloudy and swollen.

Spleen: The capsule is moderately thickened. The splenic sinuses are filled with erythrocytes and a few poly-morphonuclear and mononuclear leucocytes. The Malphigian corpuscles are small and their arteries show a great thickening of their walls with some hyaline change. The trabeculae are moderately thickened and they are more hyaline than usual.

Stomach: Congestion and round celled infiltration of the mucosa and submucosa.

Kidney: The capsule is considerably thickened. Here and there just beneath the capsule there are found areas in which the parenchymatous tissue is completely transformed into a hyaline material. The capsule is tightly bound to such regions by fibrous tissue bands. Throughout the organ there are found areas in which fibrous tissue increased and parenchymatous atrophy are marked. The glomeruli in all such areas are completely fibrous. The glomeruli frequently show great hypertrophy and lobulation. Bowman's capsule is often the seat of a fibrous tissue change. The epithelium of the convoluted tubules is greatly swollen and cloudy, causing the lumen to be stellate in shape. In the collecting tubules there are occasionally found small collections of polymorphonuclear leucocytes. Small vessels containing hyaline thrombi are not infrequently encountered. Congestion is a marked feature in all sections.

Adrenal: with the exception of a moderate round celled infiltration in the cortical portion these organs are not unusual.

Pancreas: Not remarkable.

Ovary: This organ shows numerous small and large cysts. There is a considerable increase in the fibrous tissue.

Uterus: Not pathological.

Breast: The glands are swollen and not as numerous as usual. The inter-lobular fibrous tissue is increased in amount.

Aorta: Sections taken from the thoracic portion show a nodular thickening of the intima and media. The intima is quite poor in cells and rather hyaline in appearance. The cells of the media are distorted, irregular in size and shape, and stain irregularly. The majority of them contain a small amount of dust like basic staining material (calcium salts). The elastic tissue as shown by Verhoeff's stain is not of the regular wavy type, but is distorted and frequently broken. In one area there is a basic staining mass of considerable size (collection of calcium salts). This lies in the innermost portion of the media and in the intima. It is surrounded by a zone of poorly cellular material which is quite hyaline. The media below this portion of the aorta contains more of the basic staining material than elsewhere. Sections from the shelf-like plaque show a very dense hyaline fibrous tissue



structure. The cells are small, take the basic stain fairly well and their nuclei are distorted and stain poorly. In some sections this tissue resembles amyloid, but no staining reaction for amyloid could be obtained. In this region no osseous or osteoid tissue was found. The intima over the upper portion of this plaque has disappeared and the thrombus lies in intimate association with the inner portion of the media. Sections from just below this shelf show a most interesting structure. The adventitia is greatly thickened and traversed by numerous small vessels. The tissue stains quite well, but with Verhoff's stain the elastic fibers are seen to be broken and degenerated. In the media by the same stain even greater degeneration of the elastic fibers is found. In fact, in most of the sections elastic tissue can be seen only as small strands. The media is considerably thickened and in those portions not invaded by large collections of calcium salts, the cells are found greatly changed in both size and shape, and the nuclei stain poorly. The cytoplasm takes an irregular basic stain; numerous cells are found containing dust like basic staining material (calcium salts).



Fig. 4. Modified connective tissue at A, marrow at B. Hematoxylin and eosin x 79.

Around one-half of the vessel in a crecentic formation, partly in the media and partly in the intima, there is found an area composed of osseous tissue with large narrow spaces containing red marrow in which all types of marrow cells can be found. In all such places there are also large collections of calcium deposits in the immediate neighborhood. This structure is well shown in Figures (1) and (2). Figure (3) is a microphotograph of higher

magnification than (1) and (2) and in it can be seen the true bone and its relation to the marrow. The bone shows a definite lamellar structure and numerous typical bone corpuscles. With still greater magnification a layer of cells more or less distorted and which resemble osteoclasts can be found forming a membrane covering the edges of the osseous tissue. Figure (4) shows the intermediate stage of the metaplasia. Here the connective tissue cells have assumed a quite homogeneous appearance, their nuclei are indistinct and the cytoplasm takes a faint basic stain in a few regions. This is seen to be due to very fine granules in the cytoplasm, but in the other places where the basic staining is just as intense, no granules can be seen; the calcium in such regions probably being in such finely divided state as not to be visible

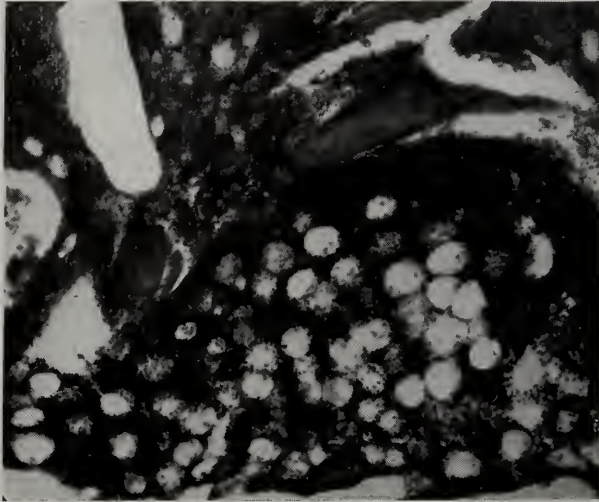


Fig. 5. Large collections of marrow cells; showing spicules of bone.  
Hematoxylin and eosin x 79

even by great magnification. A short distance from regions as shown in Figure (4) another type of connective tissue can be found. There the connective tissue cells have cytoplasm of a cloudy appearance, the cell is heavier and the amount of cytoplasm in relation to the size of the nuclei is greater. The nuclei in such cells takes a faint basic stain. At the edges of such tissue as found in Figure (4) collections of true marrow cells are generally found. These cells seem to be formed by a metaplasia from the neighboring cells for a distinct gradation of formation can be traced. In some sections, and this is fairly well shown at the upper right hand corner of Figure (4), a definite membrane can be seen, closely attached to the changed connective tissue cells. The cells which form the membrane greatly resemble osteoblasts.

The marrow occurs intimately associated with osseous tissue. Figure (5). In no place is marrow found in which bone cannot be found in the immediate neighborhood. All types of marrow cells are present here. Myelocytes are very numerous, while nucleated red blood corpuscles are not uncommon, Figure (6), and giant cells are frequently found, Figure (7). Occasionally large mononuclear cells containing pigment are encountered.

Considerable experimental work has been done on metaplastic bone formation and not a little has been added to our knowledge as to the conditions under which bone formation takes place. Sacerdotti and Frattin (17) produced bone formation in the kidney by the ligation of the renal artery. They found calcium deposits in the necrotic tissue with a growth of vascular granulation tissue into the kidney springing from the capsule, and containing osseous tissue.

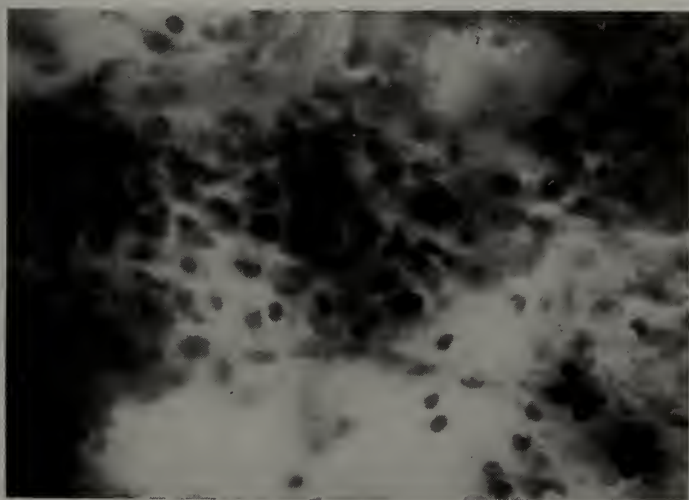


Fig. 6. Marrow; showing the various types of cells. Hematoxylin and eosin x 500.

Poscharrisky (3) repeated the experiments of Sacerdotti and Frattin and found bone in three out of five animals used in his experiments.

In Maximow's (18) experiments formation occurred in five weeks. He also states that such deposits may disappear within a year.

Liek (19), after ligating the renal artery and wrapping the kidney in omentum to secure a free collateral circulation, obtained bone formation in the region of the renal pelvis within sixteen to twenty days; without free collateral circulation it required about three months for ossification to appear.

Metaplasia has long been a subject compelling the attention

of pathologists and physiologists. Great care must be taken in calling a process one of metaplasia, for the distinctions between the various processes of true growth are not as sharply defined as we oftentimes are led to believe. "Metaplasia of a tissue," according to Ziegler (20), "is that process by which an already fully developed tissue is changed into another tissue without passing through an intermediate cellular stage." The relation to the retrograde changes is a very close one, for in the modification of form the cellular proliferation is either very slight or altogether absent.

Metaplasia is a common physiological process occurring in the body at all the periods of life. The most common examples are the conversion of connective tissue cells into fat cells and cartilage into bone.

We must differentiate, however, several closely allied processes; namely, heterotopia, in which we have a congenital or acquired abnormal snaring of cells of an organ or tissue with

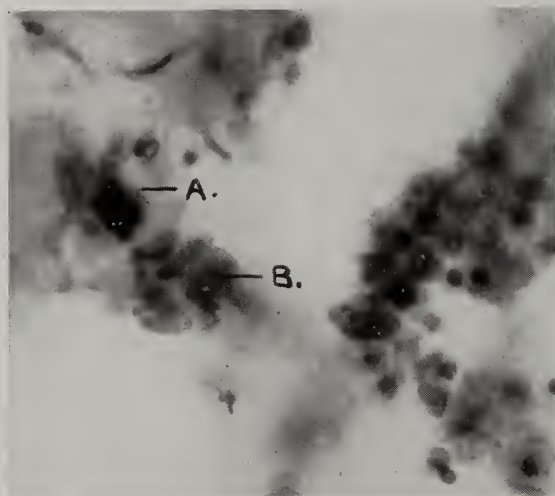


Fig. 7. Various types of marrow cells. Giant cells at A and B. Hematoxylin and eosin x 500.

subsequent growth out of place, and heteroplasia, upon which Schridde (21) has so ably written, in which a tissue of foreign nature is found growing in an abnormal situation; and anaplasia, by which is understood the loss of differential characters by tissues under abnormal conditions. Metaplasia is always bound by rather narrow limits. Nowhere do we find this process involving the evolution of a more highly specialized tissue from less highly developed tissue.

Probably the best examples of pathological metaplasia, and surely the most frequently written about are those afforded by

the metaplastic formation of bone. Ribbert (22) holds that physiological metaplasia is of frequent occurrence, but that true pathological metaplasia is a much rarer phenomenon than is usually contended. He holds that most of the cited examples of "heteroplastic" bone and marrow formation are caused by the inclusion or migration of osteoblasts and marrow cells from the blood stream with subsequent growth.

Orth takes a middle position and contends that at least it is not the mature cells but the younger cells which are not fully differentiated, that acquire the new characters.

Among those men holding that the process is one of true metaplasia may be mentioned Kassowitz, Ziegler, Virchow, Rohmer, Sacerdotti and Frattein, Bunting and Harvey.

The earlier pathologists in their discussions of heteroplastic bone formation were mainly concerned with morphological structure of the bone and surrounding tissues. Ziegler (20), for example, basing his views upon morphology alone, traced what he thought was a direct changing of cartilage into marrow-tissue with a simultaneous metaplasia of osteoid into bone tissue. He also held that in the conversion of connective tissue into bone there was an apparent thickening of the ground substance and later a deposit of calcium salts. His explanation of the final change of connective tissue cells into bone cells is not as clear as it might be. He merely states that after such an infiltration of calcium salts "the connective tissue cells come to lie in serrated spaces, and are changed into bone cells." That there is first a thickening of the ground substance and later a deposit of calcium salts is questionable. The early change which takes place in the cytoplasm is almost surely an invisible physical-chemical change, and it seems not unlikely that the deposit of calcium salts is, in some way, caused by this change. The early deposition of calcium salts in very finely granular form may cause an apparent thickening of the ground substance, or even such a process as the change in the acidity or alkalinity of the tissue may produce an apparent thickening or thinning of ground substance.

The question of metaplasia of fully developed cells into a tissue of foreign type is worthy of note. The consensus of opinion being that metaplasia is never direct, but brought about by a preliminary reversion to a more embryonic type, or where mother cells are present, by modification of the cells springing from the mother cells, by the environment during their period of growth.

Among the later authors considering the "heteroplastic" formation of bone more attention has been paid to the initiatory causes. It has been suggested that some stimulus causes a proliferation of young connective tissue, which in turn is acted upon by calcium and thereby manifests a new function by producing the ground substance of true bone (Buerger and Oppenheimer (14) ). The supporters of this view do not consider as of importance the degenerative processes which take place in the tissue in which bone formation is found. That necrosis is probably the initial change or at least a calcareous infiltration is present before bone formation can take place is believed by Harvey (16). He noticed the formation of an intermediate tissue greatly resembling cartilage. He again says that attention must be directed to the fact that, although calcium deposits are known to occur in areas of necrosis, it has never been absolutely proven that such a process is essential for such a deposit. The possibility of resorption of calcified material by newly formed blood vessels and by osteoclasts with the formation of a marrow space and the deposit of bone at its periphery by an osteoplastic membrane, formed by metaplasia from connective tissue cells accompanying the vessels, has been advanced by Bunting (13). Although he believes in the direct metaplastic formation of bone, he is not convinced of the metaplastic formation of marrow and considers its heterotopic formation as a possibility.

In my case the histological picture is quite similar to that of other authors who have written upon this subject, but in not a few sites the mode of bone and marrow formation seems to be more easily traceable. In the numerous sections studied I find no areas of osseous tissue which are not in intimate association with calcium deposits, and the bone formation is generally, but not always found at the edges of such deposits. The connective tissue cells near large deposits of calcium always show retrograde changes. This is even true although they themselves do not contain calcium. They generally tend to become more spherical, their nuclei take the basic stain less deeply and their cytoplasm is not of the usual clear character, but is rather cloudy and a few of them show basic staining cytoplasm, although no definite granules can be found. This latter change seems to be due to the influence of calcium, for it is always found near deposits of this element and it is not found in any other situation.

Poscharrisky (3) deems the presence of amyloid essential

for heteroplastic bone formation, but I was unable to obtain the reactions for it in my sections. The connective tissue does, however, in some regions assume a hyaline character. More, Joseph and Williams (23), in working on the composition of calcareous deposits in arteries and lymph glands, came to the conclusion that a degenerative process is essential before the deposition of calcium salts in tissues. It seems to me, however, that the question is one of terms. That there is some change in the cytoplasm cannot be doubted. Whether purely invisible chemical or physical-chemical changes are sufficient, or whether degenerative changes in the morphological sense are necessary in the cytoplasm are questions yet to be settled.

The nature of this chemical or physical-chemical change, whatever it be, cannot yet be made out microscopically with any staining method. Klotz (24) suggested that the process of laying down of calcium salts may be due to a secretory action on the part of the osteoblasts, while Wells (25) believes it to be initiated by a process of colloidal absorption causing a concentration of the unstable double salt of calcium bicarbonate and dicalcium phosphate.

From the recent advances, it seems that there is not much positive evidence for the belief that there is much difference between normal and pathological ossification. It seems likely, then, that the true metaplastic formation of bone has as its basis of formation some change in the physical-chemical nature of the connective tissue cells causing a concentration of the calcium salts, which in turn cause further differentiation of them into osseoid and osseous tissues. Most pathologists are now convinced of the occurrence of true metaplastic bone formation.

Although the evidence of true metaplasia of the marrow cells from the connective tissue is not as clear as in the case of osseous tissue formation, still not infrequently cells of an intermediate type which cannot be placed in either the class of marrow or connective tissue are found in the marrow spaces. It seems more than likely that a true metaplasia of connective tissue cells into marrow cells takes place.

I wish to express my thanks to Dr. W. T. Howard, of Western Reserve University; Dr. O. T. Schultz, of the University of Nebraska, and Dr. C. F. Hoover, of Western Reserve University.

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**The Heterogeneous Lipoids.**—The term "lipoids" is used as a generic name for those constituents of living cells which can be extracted by ether or similar solvents. It is a biologic rather than a chemical term, and includes substances of quite different chemical composition such as cholesterol, which is an alcohol, and lecithin, which is a complex fat. The impropriety of putting these two substances in the same class biologically is shown by recent research which demonstrates that they possess physiologic actions which are diametrically opposed to each other. The companionship of lecithin and cholesterol in the so-called lipoids of animal cells and tissues is appreciated by biologic chemists; but the differentiation of the respective roles of these compounds in physiologic phenomena is still largely a task of the future. Observations derived from the field of the study of immunity reactions have furnished instances which lead one to believe that in many cases these two classes of compounds, so unlike in chemical structure despite their superficial resemblances in point of solubility and physical behavior, are antagonistic in biologic deportment. Thus in the phenomena of hemolysis, cholesterol and lecithins (phosphatids) undoubtedly manifest quite unlike reactions in relation to the red blood-corpuses. A comparable illustration of similar differences has been furnished by a recent study of phagocytosis. Cholesterol, even in small proportions, vigorously inhibits the phagocytic response of healthy leukocytes; but the inhibition can be completely overcome by means of lecithin. This furnishes only an added instance that warns us against drawing any sweeping conclusions as to the functions of heterogeneous mixtures of ether-soluble tissue components—responses that are referred to as "lipoid reactions" or "lipoid phenomena." Biochemical research has at length reached a point at which it becomes necessary to distinguish, as clearly as our present information will permit, between the physiologic behavior of the individual representatives of an interesting and potent group of tissue components.—*J. A. M. A.*



## EPIDEMIOLOGY OF WHOOPING COUGH, MEASLES, SCARLET FEVER AND DIPHTHERIA, IN CLEVELAND FOR 1913

From the Laboratory of Hygiene, Western Reserve School of Medicine, and the Cleveland Health Department.

BY MEMBERS OF THE THIRD YEAR CLASS IN MEDICINE  
AND R. G. PERKINS.

The work summarized in the following pages was done by members of the class in Hygiene for the required thesis in that course, and it is expected that similar work will be done each year in the endeavor to get as accurate knowledge as possible of the distribution in Cleveland, and of the factors controlling the spread.

*Sources of Information.* The cases are investigated by the Sanitary Officers of the Health Department, each case being recorded on a separate card of the type reproduced with this article. They are filed at the Health Department and by the courtesy of that department were made accessible to the students.

For comparative records from other places, the last available annual reports were used as well as the reports of the bureau of the census.

*Methods of Record and Analysis.* These were made uniform in all the diseases. The individual cases were distributed on the city map according to address, and different colored pins were used to indicate the various ages, an arbitrary division being made as follows:

1. Children under school age (six or less).
2. Children attending common schools.
3. Children attending parochial schools.
4. Children attending Lutheran or private schools.
5. High school students.
6. Adults (sixteen or over).

In this way a graphic picture of the general distribution, the age distribution and the comparative responsibility of the various types of schools was obtained.

Through the courtesy of the Medical Inspector of Schools and the heads of the various parochial schools, the boundaries of the school districts were obtained and delimited on a special map. The boundaries of the Lutheran and private schools were too variable for such delimitation. Maps were constructed on the basis of this information, and the cases referable to each school summarized for the district. The total cases of each disease were

then compared with the total school population for that school district, to ascertain the proportion of cases in relation to the number of children attending the school. Finally a summation of these comparisons for the whole series of diseases was made.

The incidence and the mortality were compared with the incidence and mortality in Cleveland in former years, in proportion to the estimated population and also with the statistics in health reports elsewhere, and the results tabulated.

Age and sex as far as possible were also tabulated.

The diseases investigated will be taken up in the order determined by the prevalent age of the reported cases, beginning with the one affecting the highest proportion of children under six, and a summary of the whole series will follow.

QUARANTINE OFFICER'S REPORT

DISEASE

Date of Onset.....  
 Date Reported ..... Case No.....

Located at  
 Name Age Sex School  
 Name Age Sex School  
 Name Age Sex School  
 Name Age Sex School  
 Physician  
 Milk Supply Member ( Which Library  
 Water Supply Books  
 Contagious Hospital  
 Destroyed  
 Disinfected  
 No. of Children in Family Adults No. Attending School  
 Name of School attended  
 Card Placed on House Front - Inside Door at Rear - Outside

WHOOPIING COUGH

R. A. PEASE

Monthly Incidence in Cleveland from 1905-1912.

Month	1905	1906	1907	1908	1909	1910	1911	1912	Aver.	Aver. %
Jan. ....	10	32	36	75	109	15	126	46	48	6.42
Feb. ....	16	53	95	109	93	16	220	37	68	9.09
March ....	56	49	61	107	103	36	332	48	73	9.71
April ....	35	54	100	62	58	47	269	56	81	10.81
May ....	71	83	89	61	50	36	228	45	71	9.40
June ....	19	53	72	104	54	49	158	63	90	11.91
July ....	38	84	117	85	17	57	85	75	74	9.87
August ....	42	32	123	78	7	94	41	60	85	11.28
Sept. ....	19	19	61	39	25	42	25	29	36	4.85
Oct. ....	10	21	71	12	36	13	18	48	28	3.76
Nov. ....	6	55	46	34	29	23	19	50	35	5.95
Dec. ....	8	29	74	39	71	42	37	50	52	6.89
Total .....	330	564	965	805	652	470	1558	607	62	

The above table shows that though many authors state that the chief prevalence of the disease is in the winter and spring,

Cleveland shows the highest monthly averages in the spring and summer, notably in the latter.

Comparison with similar tables for the other epidemic diseases in Cleveland shows that in many cases the whooping cough epidemics bear a suggestive relation to epidemics of scarlet fever and measles, especially the latter. It is possible that the condition of the mucous membranes after measles offers a suitable lodging place to the whooping cough organism, though insufficient evidence is at hand to establish the actual proportion of children having whooping cough immediately after measles.

### Sex and Age

As noted in the following table the greatest proportion of the cases reported is in the first three or four years of life. In 1912 there were more females than males affected.

Ages	Cases Noted		Deaths		Case rates per 100,000 living		Fatality %	
	Males	Fem'l's	Males	Fem'l's	Males	Fem'l's	Males	Fem'l's
All	285	322	24	12	47.5	53.6	8.42	3.72
Under								
1 yr.	40	46	11	5	6.6	7.6	27.50	10.87
1-2	39	50	10	3	6.5	8.3	25.64	6.00
2-3	42	52	1	2	7.0	8.6	2.38	3.84
3-4	34	35	0	1	5.6	5.8	0.00	2.85
4-5	30	37	0	0	5.0	6.1	0.00	0.00
5-10	91	93	2	0	15.1	15.5	2.19	0.00
10-15	5	7	0	1	0.8	1.1	0.00	14.28
15-20	4	1	0	0	0.6	0.1	0.00	0.00
20-25	0	0	0	0	0.0	0.0	0.00	0.00
25-30	0	0	0	0	0.0	0.0	0.00	0.00
30-35	0	0	0	0	0.0	0.0	0.00	0.00
35-40	0	1	0	0	0.0	0.1	0.00	0.00

### Mortality

The mortality of whooping cough varies according to different authors, ranging from six per cent to as high as fifty per cent in asylums and similar places. In England it has been declared to be third in rank among the fatal diseases, ranking above diphtheria and scarlet fever in gross mortality. The death rate is highest in the cases occurring in the first year of life, and has been placed by Holt at about twenty-five per cent. In Cleveland for 1912 the rate for the first year was 18.6%. Comparison of the number of deaths from all causes in Cleveland for the last ten years with the number of deaths from whooping cough, together with the estimated population in round numbers, shows in the following table the percentage of the total deaths represented and also the death rate per 100,000. It will be noted that even in the

percentage of whooping cough deaths to the deaths from all causes, which is necessarily more accurate than the rate per 100,000, there is no very perceptible improvement. Figures for England and Wales show a drop in the mortality between 1890 and 1900 of 44%, which brought the rate to a level approximately maintained ever since. The rates in the United States show no such diminution, nor do those of Cleveland.

### CLEVELAND, OHIO

Year	Deaths from all causes	Deaths from W. C.	Estimated population	W. C. per cent of all deaths	Death rate of W. C. per 100,000
1901	5834	11	390,000	0.1885	2.82
1902	6134	34	400,000	0.5542	8.50
1903	6799	45	420,000	0.6618	10.71
1904	6476	7	430,000	0.1080	1.62
1905	6424	24	440,000	0.3736	5.45
1906	7353	41	470,000	0.5584	8.72
1907	7678	36	500,000	0.4688	7.20
1908	7177	22	515,000	0.3065	4.27
1909	7032	29	540,000	0.4124	5.37
1910	8092	44	560,000	0.5437	7.85
1911	7967	87	580,000	1.0930	15.00
1912	8149	36	600,000	0.4417	6.00

Average per cent of all deaths, 1901-1912, 0.4759; average death rate 6.96

It is of course clear that the death rate per 100,000 is not absolutely accurate, but the figures are those used by the Cleveland Health Department and the comparative rates will not be far out of the way.

In the United States for the quinquennium 1906-1910 the rates have been in general lower than in many of the foreign cities, as will be seen from the following table:

City—	1906-10	1911	1912
New York .....	7.00	8.70	7.1
Baltimore .....	15.1		
Boston .....	11.25		
St. Louis .....	5.70		
CLEVELAND .....	6.48	15.00	6.00
London .....	27.00	21.00	
Liverpool .....	46.00	32.00	
Manchester .....	38.00	20.00	
Birmingham .....	42.00	19.00	
Paris .....	10.00	9.00	
Brussels .....	8.00	3.00	
Amsterdam .....	19.00	24.00	
Copenhagen .....	28.00	38.00	
Berlin .....	17.00	21.00	
Vienna .....	8.00	6.00	

## Relation of Complications and Sequelae to Deaths

Complication	Total Deaths	Per Cent	Males	Females	Under 1 Year	1 Year and over
Respiratory failure	1	2.77	0	1	1	0
Acute Bronchitis ..	3	8.31	2	1	1	2
Inanition and Cholera Infantum	1	2.77	1	1	1	0
Exhaustion .....	4	11.08	4	0	4	0
Broncho pneumonia	14	38.88	8	6	5	9
Convulsions .....	5	13.85	3	2	3	2
Intussusception* ....	1	2.77	1	0	1	0
Heart failure .....	3	8.31	1	2	0	3
Broncho pneumonia and measles .....	1	2.77	1	0	0	1
Measles .....	1	2.77	1	0	0	1
Lobar pneumonia ....	1	2.77	1	0	0	1
Meningitis .....	1	2.77	1	0	0	1

\*This unusual cause of death could not be satisfactorily confirmed or denied.

This shows broncho-pneumonia as the most frequent cause of death, with convulsion and exhaustion as next in order.

## Relation to Schools

This part of the question will be summarized in connection with all the four diseases together, at the end of the article, to avoid duplication.

## MEASLES

W. B. DWYER and A. B. GROSSMAN

Monthly Incidence in Cleveland from 1905-1912

Month	1905	1906	1907	1908	1909	1910	1911	1912	Aver.	Aver.%
Jan. ....	20	360	56	248	31	728	93	168	214	8.9
Feb. ....	28	871	101	384	55	747	171	180	317	11.9
March .....	46	1174	164	492	115	1045	396	274	462	17.0
April .....	50	744	237	413	221	1447	385	369	483	17.9
May .....	73	899	460	529	601	756	329	553	516	19.0
June .....	148	506	615	359	436	234	102	311	340	12.5
July .....	32	114	246	113	178	50	45	96	109	4.0
August .....	11	21	59	52	51	12	42	33	35	1.2
September ..	16	3	18	28	23	11	31	19	18	0.6
October .....	26	7	73	19	41	8	20	25	27	1.0
November ..	15	12	183	21	163	9	28	76	63	2.3
December ..	58	26	217	27	349	27	118	174	125	4.6
	523	4737	2429	2685	2264	5074	1760	2278	226	

The above table shows that the highest incidence is in the spring months, about the same period as is most conspicuous at this latitude for acute and sub-acute infections of the upper respiratory passages. This is, of course, of especial interest in connection with the theory that the respiratory tract is the portal of entry for the exanthemata.

## SEX AND AGE

Sex	No. cases	Percentage	Mortality	Percentage	Death rate
Male .....	1228	53.91	20	58.82	1.62
Female .....	1050	46.09	14	41.18	1.32

Year	Deaths from all causes	Deaths from measles	Estimated population	Measles per cent of all deaths	Death rate of Measles per 100,000
1901	5834	10	390,000	0.1714	2.56
1902	6134	13	400,000	0.2228	3.25
1903	6799	10	420,000	0.1470	2.38
1904	6476	43	430,000	0.6330	10.00
1905	6424	8	440,000	0.1245	1.81
1906	7353	85	470,000	0.1157	18.09
1907	7678	35	500,000	0.4558	7.00
1908	7177	41	515,000	0.5714	7.96
1909	7032	35	540,000	0.4977	6.48
1910	8092	97	560,000	1.2110	17.32
1911	7967	38	580,000	0.4895	6.55
1912	8149	34	600,000	0.4172	5.66

Average per cent of all deaths, 0.4214. Average rate, 7.42.

In the United States for the quinquennium 1906-1910 the average death rate for measles like that for whooping cough has been lower than the foreign rates, as the following table indicates :

City	1906-10	1911	1912
New York .....	21.00	13.00	
Baltimore . .....	7.49		
Boston . .....	12.17		
St. Louis .....	8.45		
CLEVELAND . .....	11.37	6.55	5.66
London . .....	36.00	51.00	
Liverpool . .....	55.00	42.00	
Manchester . .....	54.00	47.00	
Birmingham . .....	44.00	57.00	
Paris : .....	20.00	28.00	
Brussels . .....	16.00	11.00	
Amsterdam . .....	32.00	29.00	
Copenhagen . .....	15.00	9.00	
Berlin . .....	18.00	9.00	
Vienna . .....	33.00	16.00	

These tables indicate that the conditions in Cleveland are much the same as those elsewhere, and that the mortality varies so much in different years and different periods that one can scarcely say if there is any general improvement. A period with a comparatively low rate is followed by a year with an unusually high one, whether from the development of a large non-immune population or not cannot be definitely stated, without more information than at present accessible. The maps showing distribution in Cleveland indicate that of all the four diseases discussed in this paper, measles is the most readily contagious, and this fits in well with the statistics from the cities abroad, where there is a denser population and the annual rates are higher than in the American cities.

## SCARLET FEVER

J. G. FREY and W. J. ROGERS

Monthly Incidence in Cleveland from 1905-1912

Month	1905	1906	1907	1908	1909	1910	1911	1912	Aver.	Aver. %
January .....	44	68	121	64	107	73	312	153	42	3.94
February ....	34	74	78	34	72	51	343	135	53	5.09
March .....	21	54	101	50	63	64	463	165	123	11.82
April .....	29	36	125	30	46	72	524	151	127	12.21
May .....	37	46	102	45	54	84	491	136	124	11.92
June .....	48	33	58	28	42	67	288	165	91	8.75
July .....	15	47	34	23	28	51	241	102	68	6.54
August .....	28	40	34	13	21	83	169	76	58	5.57
September ..	45	91	44	73	29	59	140	61	68	6.54
October .....	70	121	56	77	57	95	160	106	90	8.65
November ..	53	101	94	107	57	92	154	124	95	9.13
December ....	67	98	74	108	61	141	131	132	102	9.81
	501	809	921	652	637	932	3416	1506	87	

Here again the highest monthly rates are in the periods most conspicuous for disturbances of the upper respiratory tract, as was noted in the case of measles.

Ages	Cases noted	Deaths	Age mortality
All .....	1503	99	
Under one year.....	14	2	14.2%
1-5 .....	579	50	8.45%
5-10 .....	550	34	6.18%
10-20 .....	258	8	3.09%
20-30 .....	59	1	1.69%
30-40 .....	19	3	1.57%
40-50 .....	2	1	50.00%

This table shows that in Cleveland the highest incidence and the highest mortality rate occur in the first five years of life, and decrease notably after the tenth year.

Year	Death from all causes	Death from Sc. Fever	Estimated population	Sc. Fever % all deaths	Death rate of Sc. Fever per 100,000 living
1901	5834	34	390,000	0.5824	8.71
1902	6134	31	400,000	0.5053	7.75
1903	6799	16	420,000	0.2353	3.80
1904	6476	5	430,000	0.0770	1.16
1905	6424	47	440,000	0.7313	10.68
1906	7353	66	470,000	0.8975	14.04
1907	7673	121	500,000	1.5768	24.20
1908	7177	34	515,000	0.4723	6.60
1909	7032	28	540,000	0.3981	5.18
1910	8092	67	560,000	0.8279	11.96
1911	7967	185	580,000	2.3346	31.90
1912	8149	99	600,000	1.2148	16.50

Average per cent of all, 0.8377. Average death rate, 11.87.

In the quinquennium of 1906-1910, the comparison of the death rates here and abroad is less favorable than it was in the case of measles and that of whooping cough. The following table shows comparisons similar to those of the former diseases:

City	1906-10	1911	1912
New York .....	20.00	15.00	
Baltimore . . . . .	7.36		
Boston . . . . .	11.81		
St. Louis . . . . .	9.73		
CLEVELAND . . . . .	12.39	31.90	16.50
London . . . . .	10.00	3.00	
Liverpool . . . . .	25.00	17.00	
Manchester . . . . .	18.00	6.00	
Birmingham . . . . .	15.00	12.00	
Paris . . . . .	6.00	4.00	
Brussels . . . . .	7.00	5.00	
Amsterdam . . . . .	4.00	1.00	
Copenhagen . . . . .	10.00	15.00	
Berlin . . . . .	17.00	20.00	
Vienna . . . . .	13.00	8.00	

There is an apparent diminution in the foreign cities from the average of the previous quinquennium, in some cases very marked, while many of our American rates remain as high or higher. Whether or not this is due to more thorough treatment in contagious hospitals abroad would be hard to state, as the proportion of deaths from the various complications of the disease in the different cities in this country is difficult to obtain. The last twelve years in Cleveland show two notable rises, each occurring after a period of low mortality, one in 1905-07, and the other in 1910-12.

### DIPHTHERIA

R. C. GILL and H. C. KING

Monthly Incidence in Cleveland from 1905-1912

Month	1905	1906	1907	1908	1909	1910	1911	1912	Aver.	Aver. %
January ..	74	137	162	61	149	60	136	105	107	8.2
February	71	131	87	55	84	38	131	98	86	6.6
March .....	82	124	104	52	101	40	120	83	86	6.6
April .....	75	96	81	33	70	72	87	99	77	6.0
May .....	74	108	90	34	41	40	114	104	76	6.0
June .....	58	80	62	25	38	32	80	121	50	3.8
July .....	50	73	47	42	50	39	89	118	54	4.1
August ....	78	60	60	32	53	48	108	161	75	5.8
September	100	116	48	67	71	71	160	243	109	8.3
October ..	126	274	88	150	120	103	248	594	213	16.3
November	126	250	93	191	134	110	206	526	204	15.7
December	108	228	83	168	114	98	157	353	164	12.6
	1022	1677	1005	915	1025	751	1636	2604	117	

The most conspicuous thing about the above table is the regularity with which the disease increases after the beginning of school. The increase is apparently peculiar to diphtheria, and such knowledge as we have of carriers in these various infections, would seem to point to the more rapid disappearance of the contagia of measles, scarlet fever and even whooping cough, though the relationship of this latter disease to the children out of school



places it in somewhat of a different category. There is also less evidence in these three diseases of carriers in the usually accepted sense of persons having the contagion in a variable form without having even necessarily had the disease. The relation of the epidemic period suggests crowding of people in the school rooms rather than the climatic conditions, which appear to be important in measles and in scarlet fever.

Sex and Age

Sex	No. cases	Percentage	Mortality	Percentage	Death rate	Both sexes
Male	1276	49	91	54.2	7.13	
Female	1328	51	75	45.8	5.64	6.39

Age at time of death.

Age	Number of deaths
Birth to 4, inclusive	112
5-9, inclusive	38
10-19, inclusive	10
Over 19	2

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Year	Deaths from all causes	Deaths from diphtheria and croup	Estimated population	Diphtheria % of all deaths	Death rate of diphtheria per 100,000 living
1901	5834	158	390,000	2.70	40.5
1902	6134	210	400,000	3.42	52.5
1903	6799	204	420,000	3.00	48.5
1904	6476	135	430,000	2.08	31.4
1905	6424	109	440,000	1.54	24.8
1906	7353	166	470,000	2.25	35.3
1907	7678	97	500,000	1.26	19.4
1908	7177	83	515,000	1.15	16.1
1909	7032	67	540,000	2.27	12.4
1910	8092	118	560,000	1.45	21.0
1911	7967	129	580,000	1.61	22.2
1912	8149	162	600,000	1.98	27.0

Average per cent of all deaths.....2.06

Average deaths per 100,000 from diphtheria.....29.3

In the United States for the quinquennium 1906-1910 the death rate per 100,000 living has been no lower than in the European cities, as the following table indicates:

City	1906-10	1911	1912
New York	39.00	26.00	
Baltimore	9.3		
Boston	6.8		
St. Louis	9.0		
CLEVELAND	20.8	22.2	27.8
London	15.0	14.0	
Liverpool	16.0	16.0	
Manchester	17.0	12.0	
Birmingham	18.0	12.0	
Paris	8.0	9.0	
Brussels	9.0	9.0	
Amsterdam	8.0	7.0	
Copenhagen	8.0	10.0	
Berlin	27.0	42.0	
Vienna	17.0	11.0	

While these tables show a general diminution since 1901 for Cleveland, there is so marked an irregularity from year to year depending on the severity of the annual epidemic in the early school months, that one cannot feel sure that the present methods of prophylaxis are effecting any permanent reduction. The treatment of the carriers is so unsatisfactory, in spite of occasional local successes, that it seems improbable that in the absence of some radical improvement the next few years will show any notable alteration.

### Duration of Infection in the Respiratory Tract

In this connection an attempt was made to estimate the length of time the organisms remained in the respiratory tract, as indicated by their presence in release cultures. Lifting of quarantine has been, since the beginning of the school period in 1912, dependent on two successive negatives, so that the calculations run only for the last four months of the year. The time was estimated from the diagnosis culture to the release, and it must be of course remembered that it is more than probable that the organisms were present in the throat prior to the diagnosis.

Average duration divided in relation to school age :

Under 6 years.....	15.3 days
6-16 years .....	16.4 days
Over 16 years .....	12.8 days
Short duration, many cases, 2-3 days.	
Long duration .....	10 cases, 35-40 days
	13 cases, 40-50 days
	1 case 56 days

Most of these latter cases should be considered as carriers, and in many of them various means were attempted for the removal of the organisms, but without notable success. This phase of the question will be taken up in a later paper.

### School Statistics

The detailed statistics from each school would take up unnecessary space and are accordingly summarized as follows :

The schools are designated by numbers and the school areas delimited on two maps, one for the public schools and one for the parochial schools. On the public school map the school population as given by the Board of Education is noted in each district in figures, but the population of the parochial schools was not accessible in detail, all that was obtainable being the estimated total number of children in attendance.

The appended list gives the number of each of the four

diseases reported from each of the schools either directly or indirectly, and the total of these occurring in each school. The map shows the location of the school, and the population density map indicates the general living conditions.

## PUBLIC SCHOOLS

No.	School Population	Cases of W. C.	Cases of Measles	Cases of Sc. F.	Cases of Diph.	Total for School	Incidence per 1000
1	274	0	9	2	0	11	40.1
2	692	0	13	6	6	25	36.6
3	386	0	2	3	21	26	67.4
4	518	0	0	1	36	37	71.4
5	.....	0	0	0	0	0	.....
6	874	0	15	1	0	16	18.3
7	491	0	2	4	8	14	28.3
8	584	0	2	0	4	6	10.2
9	543	0	0	3	0	3	5.5
10	798	2	2	16	11	31	38.9
11	652	0	0	0	16	16	24.5
12	865	0	0	2	20	22	25.4
13	226	0	0	8	3	11	48.6
14	566	0	18	2	1	21	37.1
15	795	0	0	3	19	22	27.7
16	719	0	3	6	8	17	23.6
17	710	0	1	5	6	12	16.9
18	479	1	2	3	2	8	16.7
19	643	0	0	3	17	20	31.1
20	1360	3	0	6	16	25	18.2
21	1092	0	0	6	21	27	24.7
22	1025	2	0	18	17	37	36.1
23	747	1	0	3	7	11	14.7
24	991	0	0	4	11	15	15.1
25	462	0	0	2	4	6	12.9
26	486	3	0	6	11	20	41.1
27	565	0	0	4	1	5	8.8
28	583	0	0	3	9	12	20.5
29	148	0	1	3	3	7	47.3
30	696	9	26	6	6	47	70.4
31	281	0	11	9	7	27	96.0
32	929	1	2	0	7	10	10.7
33	577	1	0	2	14	17	29.4
34	990	1	17	5	16	39	39.0
35	703	0	3	5	8	16	22.7
36	987	0	1	0	0	1	1.0
37	726	0	10	1	0	11	15.1
38	545	0	0	15	15	30	55.0
39	565	6	3	1	1	11	19.4
40	681	0	0	8	7	15	22.0
41	601	4	1	5	12	22	36.6
42	793	2	1	2	2	7	8.8
43	935	0	20	6	15	41	43.8
44	846	0	3	10	2	15	17.7
45	765	0	33	11	4	48	62.7
46	279	0	0	3	2	5	17.9
47	501	0	0	0	13	13	25.8
48	740	2	1	3	6	12	16.2
49	839	1	6	12	9	28	33.3
50	745	1	2	4	10	17	22.8
51	707	4	2	2	4	12	16.9

No.	School Population	Cases of W. C.	Cases of Measles	Cases of Sc. F.	Cases of Diph.	Total for School	Incidence per 1000
52	873	3	3	3	4	13	4.6
53	786	1	6	6	5	18	22.9
54	645	1	8	6	5	20	31.0
55	1209	1	15	3	12	31	25.6
56	765	3	4	2	8	17	22.2
57	1013	2	16	3	6	27	16.7
58	1002	1	6	5	9	21	21.0
59	909	3	1	5	3	12	13.2
60	808	0	17	7	8	32	39.6
61	929	1	10	5	18	34	36.6
62	1598	0	42	9	15	66	41.3
63	576	0	17	3	9	29	50.3
64	642	2	2	4	12	20	31.1
65	1008	3	1	6	7	17	16.8
66	600	0	13	1	5	19	31.6
67	1150	3	0	4	5	12	10.4
68	967	0	23	7	7	37	38.1
69	716	0	14	1	4	19	26.5
70	713	2	15	11	1	29	40.8
71	574	0	26	17	8	51	89.0
72	563	1	9	8	5	23	41.9
73	488	1	10	3	3	17	34.8
74	1374	0	6	18	10	34	24.8
75	724	0	14	1	4	19	26.2
76	256	0	0	2	1	3	11.7
77	572	5	2	1	16	24	41.9
78	823	6	2	11	11	30	36.4
79	958	1	4	5	4	14	14.6
80	949	0	0	0	1	1	1.0
81	326	2	0	1	2	3	9.2
82	750	3	5	1	5	14	18.6
83	774	0	5	13	9	27	34.8
84	618	1	0	6	2	9	14.5
85	527	0	1	5	6	12	22.6
86	579	5	1	3	9	18	31.0
87	338	0	18	0	1	19	56.0
88	401	0	0	0	0	0	0.0
89	421	8	11	0	14	33	78.4
90	479	2	8	5	5	20	41.7

### Summary of School Conditions

The reduction to incidence per 1000 in each school and in the mass of schools, leads to the finding that forty-eight schools have an incidence below the average of 27.2 and forty-one above. Only twelve had an incidence of over forty-five, while nine had an incidence of lower than ten. The schools were graded according to the incidence and it was found that while in general the more crowded schools had the larger incidence per 1000 there were notable exceptions. The analysis will not be given in detail as a moderate epidemic in a small school would raise the figure disproportionately on the basis of a single year's figuring. In five or six years, however, part at least of this inaccuracy should disappear and a detailed classification will then be possible.

On account of the absence of information as to the number of pupils in attendance at the various parochial schools, no satisfactory tabulations could be made other than the summary of proportional incidence.

In the course of the study the development of epidemics in the schools could often be followed from one school to another by means of the pin maps. After a duration of variable time in a common school, a few cases would develop in a parochial school followed by an epidemic in that school, or the shift would occur in the reverse order. In several instances in the measles investigation it was noted that the first cases reported in a district on the border of another in which an epidemic was active would be in children under school age, the school epidemic developing somewhat later.

While no definite conclusions can be drawn from a single year's work, it is suggestive that the measles and scarlet fever epidemics should be associated with certain seasonal conditions, as well as with the school periods, while diphtheria begins with the school period and gradually dies out. It is of course possible that this last is due to the development of an annual immunity partly on account of the temporary immunity resulting from the number having had the disease, partly from the wide use of anti-toxin. In the course of the summer months whatever immunity may have developed will die out, and by the time the intimate contact of the school room is renewed there is opportunity for a new epidemic. In the case of scarlet fever and measles, on the other hand, it is apparently necessary that there should be something in addition to the mere increased contact. The habit, in Cleveland at least, of spring or late winter epidemics in association with the more or less general depression in a physical sense noted among children and adults at this season is interesting as indicating that the power of invasion of the contagia of measles and of scarlet fever is intrinsically less than the power of the contagium of diphtheria. When the epidemic does actually arise, the spread of measles and to a less extent of scarlet fever is more rapid than in diphtheria.

On the other hand, it seems that there must be a *special* susceptibility to diphtheria more than to the other diseases, for the pin maps show such a general distribution through the city that if the contagium were anywhere near as active as in measles, there would be few exempt. In other words the distribution of measles

is in relation to the density of the population rather than to the actual numbers while the reverse is the case in diphtheria. Scarlet fever lies between the two. This was a very light year for whooping cough and the fact that the great majority of the cases are in children under school age makes identification of the etiological factors less easy. It is to be hoped that additional work on its organism will enable us to determine the question of carriers, probably of much importance on account of the number of mild and of long persistent cases noted by clinicians.

One of the interesting suggestions which the investigation brought out refers to the relation of some of these infections to climate. The occurrence, more notable in the last few years, of epidemic periods of scarlet fever in the spring rather than in the fall and the uniform activity of measles at that period, suggests that the very large incidence of general inflammatory conditions of the nose and throat at that season, which make Cleveland such a satisfactory place for the nose and throat specialists, may have a bearing on this periodicity. Comparative monthly averages in other places in association with weather reports, and other local conditions are now being worked up in this connection and may show some points of interest.

In conclusion, we desire to make it clear that we appreciate that little can be determined from one year's investigation, but feel that after a certain number of years have been conscientiously reported, not only will the method of analysis be improved, but a mass of information will be at hand from which more valuable conclusions can be drawn.

Incidentally it has already developed that a much greater attention to detail is being given by the sanitary officers since they find that some use is being made of their records. We desire to thank them for their assistance with the records, without which much of the work would have been impossible.

## GENERAL TABULATIONS

### Comparison of Summaries

	Whooping Cough	Measles	Scarlet Fever	Diphtheria
Total Cases .....	607	2278	1506	2604
Incidence per 100,000.....	101	380	251	433
Total deaths .....	36	34	99	166
Mortality per 100,000.....	6	5.66	16.5	27.66
Death rate under school age..	7.10	2.36	6.2	13.0
Death rate during school age	2.19	0.12	3.83	2.0
Death rate after school age..	0.00	0.00	0.83	3.0
Death per cent in males.....	47	54	58	57

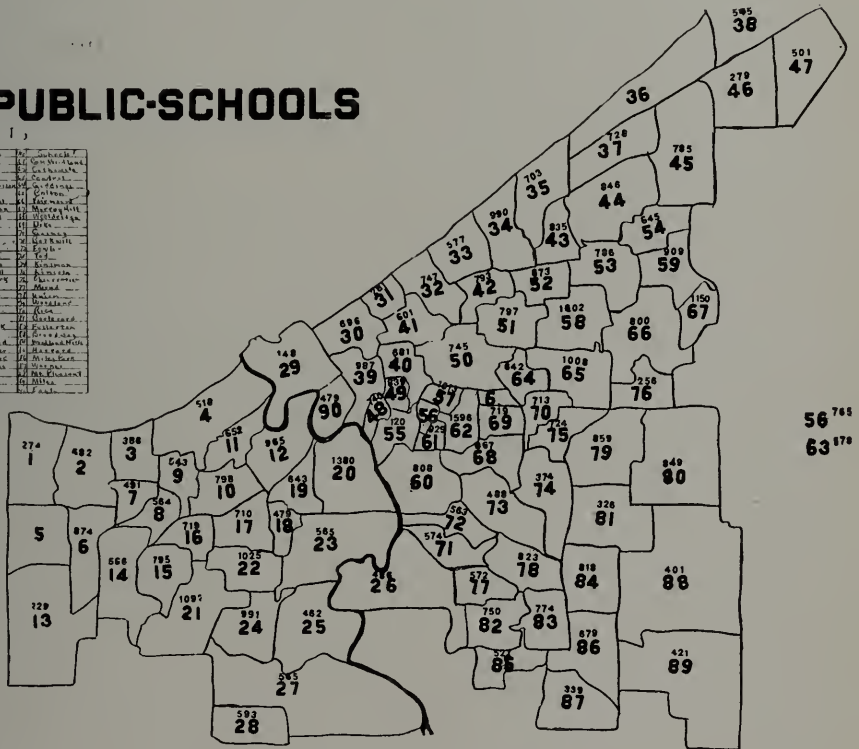
Death per cent in females.....	53	46	42	43
Total incidence in Public Schools . . . . .	111	539	424	669
Total incidence in Parochial Schools . . . . .	11	120	103	269
Total incidence in other schools . . . . .	5	31	22	36

Total school population in Public Schools, 64,100.  
 Total school population in Parochial Schools, 24,000 (estimated).  
 Total school population in other schools, 2,700 (estimated).  
 Total incidence in Public Schools, 1743.  
 Total incidence in Parochial Schools, 403.  
 Total incidence in other schools, 94.  
 Incidence per 1,000 in Public Schools, 27.2.  
 Incidence per 1,000 in Parochial Schools, 17.0.  
 Incidence per 1,000 in other Schools, 35.0.

## PUBLIC-SCHOOLS

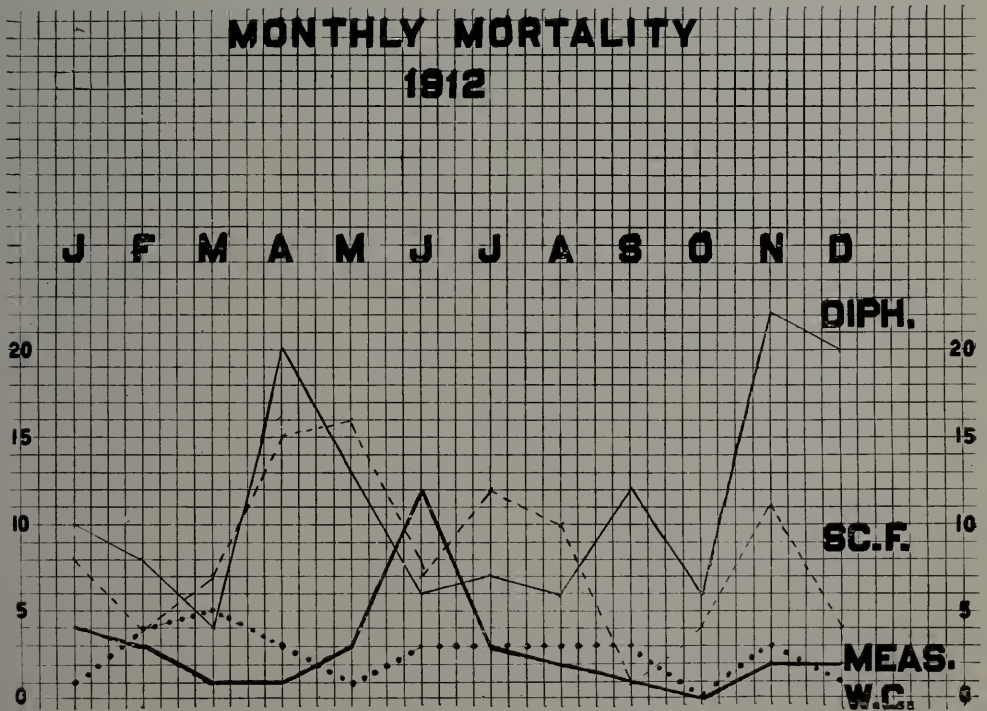
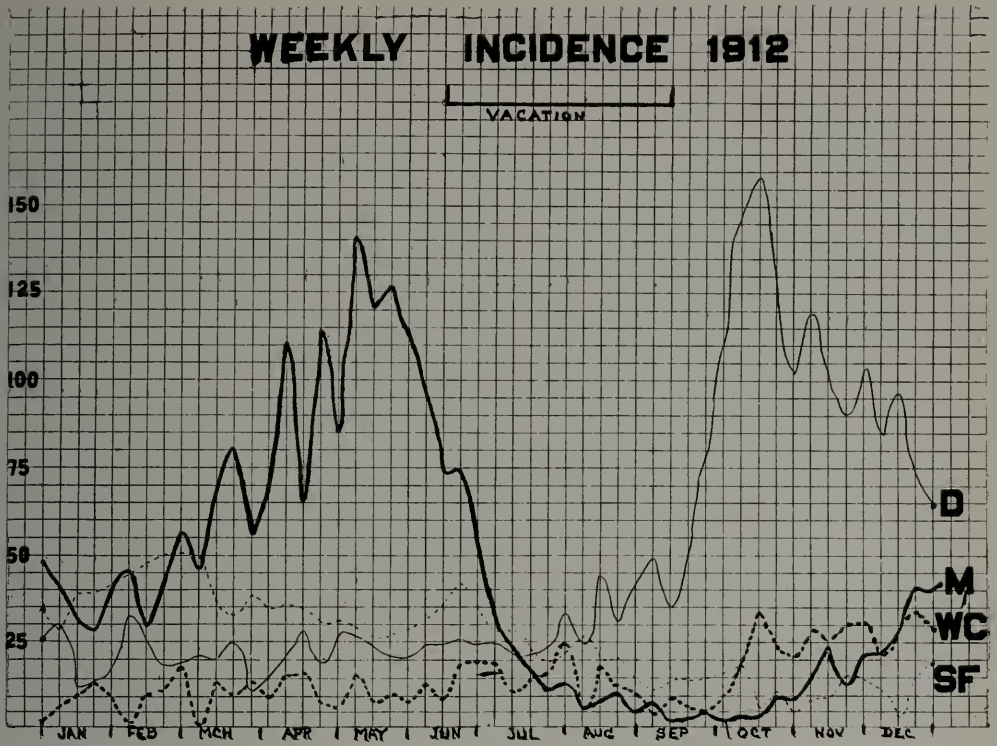
DISTRICT

1	Swain	St. Andrew	St. Andrew
2	Collins	St. Andrew	St. Andrew
3	Wagoner	St. Andrew	St. Andrew
4	Wagoner	St. Andrew	St. Andrew
5	Wagoner	St. Andrew	St. Andrew
6	Wagoner	St. Andrew	St. Andrew
7	Wagoner	St. Andrew	St. Andrew
8	Wagoner	St. Andrew	St. Andrew
9	Wagoner	St. Andrew	St. Andrew
10	Wagoner	St. Andrew	St. Andrew
11	Wagoner	St. Andrew	St. Andrew
12	Wagoner	St. Andrew	St. Andrew
13	Wagoner	St. Andrew	St. Andrew
14	Wagoner	St. Andrew	St. Andrew
15	Wagoner	St. Andrew	St. Andrew
16	Wagoner	St. Andrew	St. Andrew
17	Wagoner	St. Andrew	St. Andrew
18	Wagoner	St. Andrew	St. Andrew
19	Wagoner	St. Andrew	St. Andrew
20	Wagoner	St. Andrew	St. Andrew
21	Wagoner	St. Andrew	St. Andrew
22	Wagoner	St. Andrew	St. Andrew
23	Wagoner	St. Andrew	St. Andrew
24	Wagoner	St. Andrew	St. Andrew
25	Wagoner	St. Andrew	St. Andrew
26	Wagoner	St. Andrew	St. Andrew
27	Wagoner	St. Andrew	St. Andrew
28	Wagoner	St. Andrew	St. Andrew









## GLAND CHANGES IN THE ENDOMETRIUM

By JOSEPH T. SMITH, Jr., M. D., Cleveland.

The uterine lining has been a subject of discussion for many years, and even today writers seem to feel perfectly free to introduce their own classifications of the various histological changes which they observe. Our present conception of the endometrium is quite largely dependent upon the splendid work which has been done in the past few years by Hitchmann and Adler. These writers have presented their conclusions in about fifty articles that have appeared here and there in the literature. A good summary of their own work appears in their latest publication in the "Arch. f. Gyn." Band 100, heft 2.

As the attitude of these writers in regard to certain well-known conditions of the endometrium is radically different from that which up to the present has been considered correct, it may be worth while to quote an extract from the conclusions of Hitchmann and Adler, as expressed in the above-mentioned article (p. 238.)

"The Hypertrophic Glandular Endometritis and the Hyperplastic Endometritis have nothing to do with inflammation. The glandular hypertrophy indicates generally no pathological alteration of the endometrium, but represents the premenstrual state of the normal endometrium. The hyperplastic glandular endometritis comprehends in part normal premenstrual alterations, in part variations in the gland arrangement within physiological limits. Both cause a glandular hyperplasia of the endometrium which is quite independent of inflammation.

One form of endometritis remains: Interstitial Endometritis—Inflammation shows in the endometrium as in the other organs by stroma changes. The diagnosis of "Endometritis" demands the presence of cells which morphologically and in staining reaction are plasma cells." In short, these authors claim that all "glandular endometritis," so-called, is simply one phase of the premenstrual cycle; while all so-called "interstitial endometritis" is only a post-menstrual stage of normal endometrium, unless the presence of inflammation can be proved by the existence of plasma cells.

This view, that these well-known histological pictures in the endometrium represent merely physiological, not pathological, con-

ditions, differs widely from the older ideas as expressed by such observers as Carl Ruge, of Berlin.

It seemed as though some light might be shed upon this problem by an analysis of cases where the endometrium had been removed and examined at a known period after menstruation. Accordingly, we have studied slides from curettings in about sixty cases; but as the histories of some of these cases were defective, only fifty are available for analysis.

Care was taken to avoid cases with a possibility of carcinoma or tuberculosis. On the other hand, myomata and pelvic inflammations are included. In all, 19 cases showed pelvic inflammation; 6 showed myomata, and 36 showed perineal lacerations and uterine displacements. Nine of the patients had irregular menstruation. All the rest were of the regular twenty-eight day type. Of the nine irregular ones, some came every 2-3 weeks, and others at 5-6 weeks. Only four were so irregular as to make it impossible to prophecy at the time of curetting when their periods were due.

Hitchmann and Adler believe that glandular hypertrophy and hyperplasia are seen for the six or seven days preceding the first day of menstruation. The so-called "interstitial endometritis" is present for about eight days after menstruation, shading off into the so-called "normal" picture. These two stages together occupy a post-menstrual period of about 16 days.

One would, therefore, expect the normal picture, according to these authors, between the 8th and the 16th days after a period. Among the cases we have studied, ten showed a "normal" endometrium. Of these, eight occurred in cases curetted between the 8th and the 16th days after the last period. One fell on the 17th day and one upon the 24th day. The latter case had shown slightly irregular periods, "every three to four weeks." The condition was complicated by pelvic inflammation. The other cases were normal as to menstrual periods, but one other had marked pelvic inflammation.

In all, 29 curettings showed glandular hypertrophy. According to the ideas of our authors, most or all of these specimens should have been removed during the last 6-7 days before the beginning of a menstrual period. Below, we state the number of cases classified according to the days before the next expected period. Where the patients showed a definite cycle of other than

28 days, this fact has been allowed for. Some, for example, usually went but three weeks, others five or six. All, however, were fairly regular except the two mentioned as irregular.

Days Before Next Expected Menstruation:

Due	1	2	3	4	6	7	9	10	13	14	16	18	20	23	Irreg.
Cases	2	5	1	1	1	2	1	2	4	1	2	1	1	1	2

Very little relation can be detected between the time in the month and the incidence of the condition.

In all, there were ten cases of Gland Hyperplasia in the series studied. This condition is frequently found united with a Glandular Hypertrophy. Grouping these ten cases also according to the number of days before the next expected menstrual period, we get:

Days Before Next Expected Period:

Now flowing	1	2	3	4	9	10	13
Cases	1	2	2	1	1	1	1

These cases, while by no means all falling within the 6-7 day premenstrual limit of Hitchmann and Adler, certainly are grouped markedly towards the latter half of the menstrual cycle.

Let us turn to the cases of so-called "Interstitial Endometritis" in our series. There were twenty of these of which three occurred in patients of such irregular menstrual history that they must be disregarded. According to Hitchmann and Adler we should expect these cases to be from curettings made in the first week or ten days after menstruation. These cases are grouped thus:

Days After Menstruation:

	7	8	10	12	15	18	21	22	27	28	30
Cases	.1	1	1	4	2	3	1	1	1	1	1

These group themselves more in the middle than in the early days of the menstrual cycle. Six of the cases were from patients with severe pelvic inflammations.

We must bear in mind the opinion of Hitchmann and Adler that all cases of so-called interstitial endometritis are simply menstrual phases unless they show plasma cells and other connective-tissue changes. Six of our cases were definitely inflammatory as shown by this criterion. One of these fell upon the tenth day, one each upon the twelfth, eighteenth and twenty-first day. Two fell upon the fifteenth day after menstruation. The other cases

of interstitial endometritis showed no inflammatory changes except a few round cells. There was simply an increase in the relative amount of stroma tissue.

The thought had suggested itself that if glandular changes are seen only at the premenstrual period, a marked hypertrophy seen at some other time during the cycle would point towards a malignant change. Might it not be wiser, in patients with suspected adeno-carcinoma of the fundus, to perform our diagnostic curettage at a time when, according to our authors, a "normal" endometrium, or even an "interstitial endometritis" should be expected?

In view of our inability to confirm the work of Hitchmann and Adler in regard to gland hypertrophy, we have been unable to throw any light upon the above question. The extremely irregular bleeding, part of the history of all the suspected carcinoma cases with which we have come into contact, makes it difficult or impossible to tell when menstruation is due.

Of the cases examined, only two gave at all satisfactory results. These both yielded curettings of such a character that absolute diagnosis of carcinoma was impossible. Later, hysterectomies proved the presence of adeno-carcinoma. Though curettage was performed in one case ten days, and in the other sixteen days, before the next expected periods, both specimens showed marked glandular hypertrophy and hyperplasia.

In conclusion, as a result of the study of some fifty cases, we find ourselves unable to accept the idea of Hitchmann and Adler, that Glandular Endometritis is merely a normal premenstrual phase. In view of the conditions with which this histological picture is associated, we believe it is more probably due to a trophic influence, and we agree with the authors that it is probably not inflammatory in origin.

Our cases of Normal Endometritis agree fairly well with the theory of Hitchmann and Adler.

Our cases of so-called Interstitial Endometritis do not fall into the first ten days or so after menstruation, as claimed by Hitchmann and Adler.

The material used has been from the Gynaecological service at the Lakeside Hospital.

## THE CAUSE AND TREATMENT OF MENSTRUAL MEMBRANES

By B. L. SPITZIG, M. D., Cleveland

It is not within the province of this communication to discuss the histology of the endometrium, but to refer briefly to the changes occurring during the premenstrual stage. After the vascular congestion in the uterine mucosa the intercellular spaces in the deeper layers become greatly edematous. The stroma cells, too, show an increase of fluid content with consequent distention of their cytoplasmic outline. Generalized vascular congestion and infiltration with the formed elements of the blood add to the histologic picture. The glands likewise are dilated with infiltration of their epithelial lining and their lumina are distended with mucus and blood cells.

The superficial stratum of the mucosa does not permit so great an engorgement, but remains as a compact layer overlying the spongy tissues. As a result of increased pressure this surface epithelium becomes necrotic and is then exfoliated with the onset of bleeding. (Cf. Sanes, J. A. M. A., Oct. 18, 1913.)

The clinical knowledge of the presence of menstrual membranes is important. Too often victims will remain silent, accepting their condition in the light of a natural phenomenon. A free menstrual flow is seldom painful. The fibrinous membranes with thrombi are generally characterized by varying degrees of discomfort. In the extreme stage there is the classical "membranous dysmenorrhea."

Endometritis may be responsible for painful menstrual membranes; but there are many cases in which intermenstrual curettage shows no signs of an inflammatory process and effects no improvement in the symptoms. In these cases the hypothesis to be advanced is offered as a solution to the problem and the results of the treatment recommended have thus far confirmed the correctness of the theory.

The early work of Wright in connection with increased viscosity of the blood led the author to entertain this factor as the probable cause of functional dysmenorrhea. It was suspected that many women acquired viscid blood from faulty hygiene, particularly from defective elimination or nitrogenous poisoning, sedentary occupation, etc. During the premenstrual stage there is a congestion of the uterine vessels which favors a local increase of viscosity. The viscid blood being more static,

permits a more extensive serous infiltration into the surrounding tissues. This causes a disturbance in the chemical equilibrium of the cells of the endometrium. The colloid protoplasm absorbs greater quantities of serum and this gelatinous material now swells into a viscid mass. In consequence of this the spongy layer becomes markedly distended, vascular congestion is further increased, mucus-production and the formation of fibrinous membranes are stimulated.

It was learned that by reducing the viscosity of the blood clotting and membranes could be prevented. It appears that by this recourse the uterine circulation is rendered more patent and excessive edema of the endometrium may probably be retarded. Bleeding through the glands of the mucosa is encouraged which obviates the occurrence of diapedesis through the stroma and epithelium. The clinical evidence in support of this belief is the patient's amelioration of pain and the disappearance of clots and membranes in the menstrual discharge.

The treatment will be mentioned briefly at this time. Dietetic restrictions are advisable. Nitrogenous food is known to increase the viscosity of the blood; fats and carbohydrates, therefore, are to be preferred for one to two weeks before the menses. Intestinal elimination usually needs to be encouraged. In the nature of baths, a hot compress is beneficial. The medicinal treatment consists of citric acid,\* the most active agent in reducing the viscosity of the blood. It abstracts water from the colloids of the erythrocytes as well as from the cells of the endometrium. The relief from mucus-formation and membranes and the amelioration of pain following its use proclaim it well-nigh a specific for functional dysmenorrhea.

I am deeply grateful to Western Reserve University for courtesies extended to me at Charity Hospital Department for Internal Medicine.—Spitzig.

\*A standard formula represents one part of the acid to three parts of lactose, a teaspoonful of the powder in a half glassful of water—three to four times daily. This seems more acceptable than the acid given in sweetened mixtures.

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**Nomenclature.**—At its recent meeting the American Roentgen Ray Society adopted an official nomenclature pertaining to roentgenology. The adoption of such a list to be used in medical literature is commendable. By a continued insistence on the use of words mutually agreed on, medical publications will aid in giving simplicity to a nomenclature already so complicated that understanding is difficult. These terms have been used by *The Journal* for some time and have been found satisfactory; uniformity makes more easy the indexing of papers and communications on any topic and avoids multiplicity of terms which complicate the editing of manuscripts and bewilder the reader.—*J. A. M. A.*

## REPORT OF THREE CASES OF RETINITIS PIGMENTOSA.

By M. W. CARPENTER, M. D., Cleveland

The childship of which these cases form a part, consists of five members, a brother age 24, a sister age 21, whom I have not seen but who are said to be normal; a sister age 29, and two brothers ages 16 and 18, respectively; the latter three being the subjects of this report. The father died at 41, neither he, his parents, grandparents or any other relative so far as I have been able to learn, have ever had any eye disease, or any form of degeneracy. The mother is alive at 52, is wearing about a minus three Sphere for her distance correction, with which she has good vision. Her father died at 86, and was able to read without glasses all his life. (Probably myopic three diopters or more.) The mother's grandmother suffered from some form of eye disease, with poor vision, the greater part of her life. Nothing further about the maternal ancestry can be learned.

The mother has one brother and one sister, both said to be normal, as are the sister's four children. The brother has two sons living in Wyoming, of whom there is the following brief account: the elder, age 19, was employed at clerical work until two years ago, when his eyes began to fail; he then worked in a car barn for a short time, but was obliged to give up the position on account of his poor vision. He is now employed on a ranch. Concerning the younger, age 14, there is no information, except that he is unable to read ordinary print. There is no history of consanguinous marriages in this genealogy, at least so far back as the great grandparents.

Case I, A. Mc., was referred to me for examination by Dr. C. H. Tanner of Willoughby, Ohio. Personal History Had measles at four years of age, whooping cough the same year; at eight fell from a hay mow and was unconscious for several moments; felt sick and dizzy the remainder of the day. At nine was supposed to have had scarlet fever, but was sick only one and one-half days. First noticed failing vision at 12, when he could not see to play ball, although he had no difficulty in following the game when others played. After this his vision failed rapidly and at the end of six weeks he could no longer see to read ordinary print. Thinks both eyes began to be affected at

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\*Read before the Ophthalmological and Oto Laryngological Section of the Cleveland Academy of Medicine, Oct. 24, 1913.



same time, and that the decline in vision was equally rapid. He consulted Doctor Tanner who gave a vigorous treatment with mercury. After about eight months, thinks eyes began to improve, and at the end of a year and a half could see to read by holding the book very near. His vision has remained stationary from that time to the present. He has never had night blindness, and prefers a dim light or twilight. Has been working as a farm hand for the past two years.

This case and the two succeeding cases, as well as the mother, have had repeated Wasserman tests made (By Dr. J. R. Davis) and they have always been negative.

The subject is well built, with lightbrown hair, and with blue-gray irides. Has very small ears, and small teeth, set widely apart; no other abnormalities. Lids, conjunctiva and cornea show no signs of previous injury or inflammation. Ocular movements free and full in all directions. Pupils over half dilated in moderately lighted room, but contract fully but sluggishly in bright light. There is a continuous rotary nystagmus in both eyes. Vision is about 3/60 in each eye. Ophthalmoscopic examination; Right: media clear, disc round and more pale than normal. Cupping shallow, lamina cribrosa not visible. The retina is of a pale red color, and has a plush or fluffy appearance. The larger retinal vessels are much smaller than normal, and the smaller vessels are invisible. There are no markings of the choroidal vessels. The macula is pale and hazy. In the extreme upper outer quadrant is a small area of choroidal atrophy. Otherwise there is absolutely no pigmentation.

The left eye has the same appearance as the right, only there are no areas of atrophy. The form fields of both eyes are contracted about 20 degrees, with a corresponding contraction for blue and red. Absolute scotoma for green. There is a relative ring scotoma in both eyes, more marked in the left. Refraction shows myopia of about .50D. in each eye. Vision not improved with any lenses. It seems probable that the apparent improvement in vision after eight months, was due, not to an actual betterment, but a better knowledge of how to use the vision he had remaining.

Case II, K. Mc., Age 18, brother of Case I. First noticed failing vision at ten, when he could not see the writing on the black board at school. Grew worse for about six months; since

then has noticed little if any change. Has had whooping cough and measles; no sickness immediately preceding the onset of the eye symptoms. Has always been able to read coarse print. Consulted an oculist in Cleveland, who prescribed glasses which he did not wear. Has had no medication. Has no night blindness, and prefers a dim light. Both this case and Case I, wear their caps drawn low over forehead on bright days. In personal appearance resembles Case I very much. Examination of the lids, conjunctiva, and cornea was negative. Has no nystagmus. Pupils round and about half dilated; contract fully in bright light. Vision  $3/60$  in each eye. Ophthalmoscopic Examination: Right-media clear, disc oval, long axis 90 degrees; very pale in color, margins hazy. No pigmentation about the margins. Arteries of the disc are narrow compared with the veins. Narrow deep cup, no lamina cribrosa seen. The retinal vessels are few and small; the main trunks and first branches can be seen for a short distance. The whole retina, with the exception of the macula, and perhaps the extreme periphery, is covered with innumerable small black spots, irregular in shape, and often attached one to another by thread-like processes. The macula itself is pale and blurred. After leaving the immediate vicinity of the macula, the spots become thicker and larger toward the periphery. They are not especially large or numerous at the equator. Neither can there be observed any definite arrangement of the pigment about the veins, but wherever the spots and the vessels come in contact, the spots lie anterior to the vessels. The pigmented areas are more numerous on the temporal than on the nasal side of the fundus; they also are more numerous in the lower than in the upper part. Wherever there are unpigmented areas the retina is of a pale red, almost yellow color. A little to the temporal side of the macula is an area of choroidal atrophy, about the size of the disc; in this area the large vessels of Haller's layer can be plainly seen. The left eye has about the same appearance as the right, except for the area of choroidal atrophy. The fields show about the same amount of contraction as in Case I; the ring scotoma is, however, more positive, and there is no scotomata for colors. Refraction, Right:-2C. ax. 15 degrees. Left:-150C. ax. 165 degrees. Vision not improved with lenses.

Case III, Mrs. P., age 29, sister of Cases I and II. Was sickly as child and mother. Thinks her eyes were never "right" after measles at six years of age. Commenced attending school

at nine years; at twelve had difficulty in seeing ordinary print. Thinks there was some improvement after two years, but since then vision has remained stationary. Has considerable night blindness; says cloudy days are especially annoying. Is mother of three healthy children. Bears a close resemblance to brothers. Vision 6/60. Inspection of the eyes revealed nothing abnormal, except dilated pupils. This patient was unable to be seen at my office, so could only get her fields approximately by having her fix each eye separately, and using the handle of the ophthalmoscope as a test object. I found her fields were somewhat contracted, and there was a positive ring scotoma at about thirty degrees in each eye, where the test object passed completely from view. Ophthalmoscopic: Right-media clear, disc round and pale in color. Margins are hazy and not pigmented. Retinal vessels about the same size as in cases I and II. About the macula are multitudes of very small glistening white dots, with which are mingled a few black dots about the same size. The macula itself is not speckled, but is gray and dim. As we leave the immediate vicinity of the macula, the white dots diminish in number, and the black increase. At the equator the blacks are very numerous, and the whites few. The blacks continue on the periphery. Examination of the left fundus shows a condition almost identical with that of the right. In this case, as in the preceding, one could notice no definite relationship between the distribution of the pigment and the blood vessels. This case was seen one year ago by Dr. Shackleton; his record states there were some changes about the macula, with slight pigmentation.

These cases are of especial interest, as they represent in the same family three different types or stages of the disease. In reviewing Nettleship's classic work of analyzing some 1600 cases in 900 families (1) there could be found but one similar instance. (2) These cases differ from those previously reported in that there is no mention of choroidal atrophy, or mixed pigmentation. In the absence of some of the classical symptoms of retinitis pigmentosa such as the absence of night blindness in cases I and II, and the poor central vision in all, one would have to carefully consider syphilitic choroido-retinitis before making a diagnosis; but the fact that repeated Wasserman tests were always negative, and that Case I, who was thoroughly mercurized is no better off than Cases II and III, and above all that it is a familial disease, would exclude any doubt. In this con-

nection attention may be drawn to the case of the two cousins living in Wyoming whose histories are so strikingly like those of the cases just reported.

Retinitis pigmentosa is a familial disease, characterized clinically by progressive loss of vision, usually by contraction of the visual fields, with ring scotoma and night blindness. It is exceedingly chronic in its course, and although there may be no appreciable change over considerable periods of time, it ultimately ends in total blindness. The pathological changes closely resemble those of syphilitic chorio-retinitis. (3) There is atrophy of the nervous elements of the retina and papilla, with degeneration of the retinal vessels. The deeper layers share in the process, the rods and cones disappear, the choroid becomes atrophied, and there is complete absence of the chorio-capillaris. The pigment is derived from the pigment layer of the retina, and is much darker than that of the choroid; as the cells disintegrate, the pigment granules travel forward into the atrophic areas which alone are pigmented; there are, however, atrophic areas which do not contain pigment. As regards the primary focus of the disease, opinions differ. Lister (4) holds that there is a primary degeneration of the nervous elements of the retina. Parsons, (5) Nettleship and others, do not accept this view, but are of the opinion that the primary process is located in the choroidal circulation. Nettleship suggests that this could be brought about, in predisposed persons, by stasis caused by the anastomosis of the branches of the anterior ciliary, and the recurrent branches of the posterior ciliary arteries. This view is supported by the fact that the layers first affected, are those dependent upon the choroidal circulation for nutrition.

While the clinical symptoms are fairly constant, there are, at times, wide variations. There may be day blindness instead of night blindness. Central vision may be lost at the same time, or before peripheral vision. The ring scotoma is fairly constant. There is nothing definite regarding the color fields. The pigmentation is almost pathomonomic, but occasionally there are cases without pigment (*retinitis pigmentosa sine pigmento*), or with white spots (*retinitis pigmentosa albes cens*). (6) As a rule the amount and color of the pigmentation is independent of the complexion of the person; yet I have not been able to find a report of a case of *retinitis pigmentosa* in an Albino. In Albino rabbits there is no retinal pigment, but in human eyes there

is always some pigment in the epithelium, but none in the stroma in Albinos.

There is nothing definite regarding the length of time from the onset of the symptoms before the pigment appears in the retina. Case I after four years shows no typical pigment. Case II after six years is thoroughly spotted, while Case III after eighteen years, as recorded by Doctor Shackleton, showed only a slight pigmentation about the macula, and nothing characteristic until one year after.

Again there are great variations in the amount of choroidal involvement. Fuch's atrophía gyrata choroidae et retinae (7) has all the factors of retinitis pigmentosa: heredity, consanguinity, night blindness, et cetera, and differs only in the amount of choroidal degeneration. Again, if we place at the other end of the line congenital stationary night blindness, which also has many of the factors of retinitis pigmentosa, and shows no fundus changes at all, the two extremities might represent the maximum and minimum results of a similar cause.

The retinal vessels are always narrowed, and the smaller ones obliterated. The age of onset varies from infancy to 50 years, or even older. Nettleship reports a genealogy in which the symptoms first became manifest at about 50 years; and fair central vision was maintained until nearly seventy. Other cases are said to have run their entire course in utero, the child being born blind with retina studded with pigment. In most cases, however, the onset is in the first half of life. Usually cases of the same genealogy are first affected at about the same age. Often there seems to be an exciting cause, and failing vision is first noticed after typhoid, scarlet fever, hemorrhage, the climacteric, et cetera.

The most common complication is posterior lamellar cataract; this does not appear until late in the disease. More males are affected than females, in the proportion of three to two; but more cases are transmitted by females; this is probably due to economic conditions, the male being the breadwinner is handicapped, while the female, being helpless, is more alert in securing a provider. There is no lack of fertility, many large families of ten, twelve and even sixteen children are reported. Neither does there seem to be an excess of early deaths, premature births or miscarriages.

As predisposing factors, heredity and consanguinity play the all important parts. Myopia, both in individuals and in

families, is often associated with this disease. Deaf-mutism, epilepsy and various neuroses are common in the genealogies. In some of Nettleship's cases deaf-mutism seem to alternate with retinitis pigmentosa, but there is probably no anatomical connection between the two conditions. Persons having one form of degeneracy are very liable to marry with those having another form; their misfortune barring them from forming better alliances. In such cases each degeneracy is probably transmitted as a unit, in accordance with Mendel's law of heredity. Nettleship reports a genealogy extending over seven generations, and comprising over two hundred members, 38 of whom were afflicted with retinitis pigmentosa. He says of them "Not a single case of mental defect, deaf-mutism or other form of degeneracy has occurred in this genealogy. They were above their class in intelligence and decidedly long lived. The descent of the disease was invariably continuous, that is from parent to child. No healthy pair ever had an affected offspring. In no case did two afflicted persons marry, but in two instances an afflicted woman married a healthy cousin, and in each of these cases exactly half the children were affected." The famous Andalusian fowls do not illustrate Mendel's law more accurately. The same law seems to hold good in nearly all of the extensive genealogies. Consanguinity of parenthood is frequently noted; union of cousins, or uncle and niece are the most prolific in transmitting the disease to offspring; but whether this is due entirely to the increased liability (both parents being of tainted stock), or if consanguinity plays a part independent of heredity, cannot be determined. In some cases it would seem that continuous consanguinity could cause the disease, *de novo*; but this cannot be proved, it being next to impossible to eliminate the hereditary factor.

In this genealogy the transmission of the liability was probably direct from the great-grandmother, through the myopic grandfather, and the myopic mother to the cases in this report, and their Wyoming cousins.

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**CONSERVATION OF THE FAUCIAL TONSIL**

By SECORD H. LARGE, M. D., Cleveland

Tonsilectomy instead of Tonsilotomy for the removal of the faucial tonsils has become so popular that one is lead to believe that a number of healthy tonsils have been sacrificed.

Until we have more authentic data on their functions we should hesitate to remove a healthy organ.

I do not wish to convey the impression that I am an ultra conservative on this question. Where it is demanded, there is no operation in surgery that gives any quicker or more gratifying results.

As to their functions, physiologists differ. Permit me to cite a few of the supposed functions:

1st—Formation of leucocytes.

2nd—Phonetic.

3rd—Mechanical, as aid in swallowing.

4th—Secretion of a substance that combats bacteria or renders them harmless, or may act as a filter.

These are all problematic. At the present time, in the young, the tonsil is looked upon as the watch dog of the respiratory track.

Pathological lesions in the postnasal and nasal regions to my mind are much more dangerous than those in the faucial tonsil on account of the rich distribution of lymphatics. This is seen in cases of diphtheria when the disease invades these parts.

The question is then, when should faucial tonsils be removed.

1st—When they become hypertrophied and interfere with breathing.

2nd—In recurring attacks of tonsilitis.

3rd—In peritonsillar abscess.

4th—In recurring attacks of cervical adenitis and in tubercular cervical glands.

5th—When the crypts are filled with caseous masses.

6th—In attacks of rheumatism associated with tonsilitis or where the tonsil is suspected of being the focus of infection, in other diseases as: nephritis, endocarditis, arthritis, et cetera.

Unless hypertrophied tonsils are causing unfavorable symptoms, they should not be removed. We must be guided by subjective as well as objective signs.

The statement is frequently made by physicians that all tonsils which extend beyond the faucial pillars should be removed. This is too radical a stand to take.

The complete enucleation of the tonsils certainly prevents a recurrence of tonsilitis; but even then one may have an inflammation of the posterior pillars and lateral walls of pharynx on account of the rich distribution of lymph cells; this may resemble a tonsilitis.

For peritonsillar abscess or quinsy, as it is called, enucleation is the only safe procedure.

Cervical adenitis is caused by some infection entering through the mouth or its vicinity. It may not be in the tonsils but if we have excluded other possible foci we are justified in removing them. In tubercular glands the possibility being so great that the tubercular infection originated through the tonsil they should be removed along with the diseased glands.

If tonsils have one or two crypts containing caseous masses I do not think we are justified in an enucleation until we have tried some simpler method.

The electric cautery in the hands of the writer has cleared up a number of these cases.

Rheumatism and tonsilitis have become so closely associated that when we speak of one we naturally think of the other. We believe that rheumatism is caused by some infection probably with some form of the streptococci and the possibility of the infection taking place through the faucial tonsil should be given every consideration.

We have made a culture from practically every sore throat that has come under our observation during the last year. The streptococci have predominated.

The function of the faucial tonsil is entirely problematic. If diseased, its function, if it has such, is destroyed, and it then acts as an incubator and carrier of bacteria.

All large tonsils are not diseased, the submerged ones as a rule give most trouble.

Enucleation, especially in adults, is a major operation, and should be performed in a hospital.

Too little attention is being paid to nasal and postnasal regions in considering the origin of infections.

A more thorough examination of the faucial tonsils is certainly advised before their enucleation.

A plea may appropriately be made for the recognition of the laryngologist in our school inspection and other institutional work.



# The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and  
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

THE OFFICIAL ORGAN OF THE ACADEMY OF MEDICINE OF CLEVELAND

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Entered March 7, 1902, as Second-Class Matter, Post-Office at Cleveland, Ohio, under Act of Congress of March 3, 1879.

Organized January 20, 1902

Capital Stock \$6,000

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## EDITORIAL

### THE LATEST, GREATEST ADVANCE IN MEDICAL EDUCATION

The recent announcement of a donation of a million and a half dollars to the Johns Hopkins University from the General Education Board is interesting, not because it is the largest single sum thus far granted by the Board, but because of the specific purpose to which the income from the fund is to be applied. Medical education in this country has had to reckon with three very

grave and serious problems in the advance which it has been making during recent years. The first of these is the placing of the fundamental laboratory branches of medical education in the hands of full-time teachers who devote themselves entirely to their own individual fields; this problem carried with it a secondary, but equally important one, namely, the raising of entrance requirements to such a degree as to furnish an intellectual soil proper for the reception of the teaching. Secondly, it has been necessary to better clinical teaching, by making provision for adequate hospital material. Twenty years ago the Johns Hopkins University at a single stroke solved these then seemingly insuperable difficulties when it opened a Medical School whose advantages were to be limited to the holders of collegiate degrees, whose laboratories were in charge of a corps of brilliant, full-time teachers, and whose students were to have the "run" of the wards of a first class hospital. Medical education has made tremendous strides in this country, and the progress of any single school is to be measured by the degree to which it approaches the ideals and standard set twenty years ago. The greatest gain has been in the general improvement of laboratory teaching and in the increasing of entrance requirements. In the matter of complete control of hospital material most schools have had to lag lamentably.

The third great problem in medical education, one which has been constantly increasing in importance and which has seemed more and more difficult of solution with the passage of time, is that one which the General Education Board, through its recent gift, helps to solve. Too long the relative values of mountain and Mohammed have stood in inverse order to each other—the medical school, in order to obtain clinical material for teaching, has had to go to the clinicians who had hospital services. And too frequently the latter have not lived up to their teaching obligations; all too often they have made university professorships and hospital positions feeders to private incomes. Such a condition is intolerable, and the General Education Board's gift makes possible the greatest advance in American medical teaching, since it shows how this condition is to be overcome.

The Johns Hopkins University's latest good fortune should occasion no envy upon the part of other institutions. It is fitting and proper that the medical school, which solved the first big problem of high entrance requirements and scientific laboratory

teaching and which has gone much further in the solution of the second problem of hospital facilities than any other school, should be the pioneer in the final and biggest task which yet remains to medical education. If the newspapers can be believed, the large sum granted is to be used for the endowment only of the clinical departments of medicine, surgery and pediatrics, thus emphasizing once again the very high cost of first class medical teaching. A realization of this cost means much to several groups of people. The governing bodies of those universities not able or willing to meet the cost had better close their medical schools. When prospective medical students realize what value they can and should receive for the tuition fees paid, then institutions with inadequate private endowments will *have* to close their doors. And when the average citizen understands that he is entitled to the services of doctors who can be properly trained only at great cost, then the state universities ought to be able fully to take up the burdens of such medical education. The future can have room only for medical schools maintained by almost inconceivably large private endowments or through taxation by the free-will offerings of an intelligent citizenship. O. T. S.

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### THE HOSPITAL IN RESEARCH

There was dedicated in the city of Buffalo on Nov. 1, 1913, a Hospital for the Study of Malignant Disease. This is of itself important, but the fact that it is designated "The Hospital of the State Institute for the Study of Malignant Disease" is of greater significance. It means that it is an integral part of the equipment of the Institute. The opening of this hospital marks another advance in the modern trend of American medical investigation, whose tendency is toward the identification and concentration of individuals and institutions upon specific problems. The development of research along these lines is breaking down a widespread error of judgment that hospitals for human patients and laboratories should remain separate. To the medical mind this attitude has always been foreign to the best medical thought, because our estimate of the hospital is largely dependent upon the quality of the laboratories with which it is connected.

That such correlated activities should ever have become partially estranged is probably due to an unavoidable distortion of the recent rapid growth of medical knowledge in its effort to accommodate itself to the prevailing economic conditions. American

medicine is fortunately making rapid strides toward correcting this abnormal development both through its private and state foundations. The hospital needs the laboratory's standards, and the laboratory needs the hospital's material. These ends can be met only by the investigator becoming a clinician and the clinician becoming an investigator on the subject or subjects of his choice.

The day of the Zenker hardened specimen in the cause of cancer research is in its evening. Study of the dead tissue must be combined with painstaking records and study of the living tissue under one management. It is to insure this result that the state of New York has added, a hospital for the study of human cancer, to its Institute already well equipped with facilities for comparative studies in this disease. The men whose foresight and energy have made possible this addition to the equipment deserve the highest praise. Few of us realize the obstacles that have to be overcome in advancing such a cause. Praise seems all the more worthy when one considers that this is a state undertaking rather than a private institution.

What New York is doing for the eradication of cancer, and what means she is adopting in order to attempt to do something, are quite different questions. With the former we are not now concerned, while with the latter question it is our opinion that in incorporating a hospital as an integral part of an active institute, devoted solely to a single problem, she has made a great donation both to the cause of governmental activity in public health problems, and to American research methods, which both private and state foundations may emulate with profit.

D. M.

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### THE FIELD OF PREVENTIVE MEDICINE IN PRIVATE PRACTICE.

At the present time considerable attention is paid to preventive medicine. The majority of medical colleges have a department of preventive medicine and hygiene, and a certain number of hours is allotted to lectures on these subjects. Considerable attention too is given to the prevention of infant mortality, to question of fresh air and sunlight and to the necessity of pure water and milk supply. Boards of Health have accomplished a great deal in limiting the number of contagious diseases, by requiring physicians to report these cases and to institute proper isolation, and by the medical inspection of schools.

Is the family physician doing all in his power to prevent

disease among his patients? Take for example, in vaccination we have an almost certain means of stamping out smallpox, yet how many physicians urge upon their patients the necessity of having their babies vaccinated at the third or fourth month? Little objection would be met on the part of parents if the need of this precaution was urged upon them. Every physician knows or should know that the ordinary head cold is very contagious, and yet we very seldom see an attempt made to keep one child in a family who has a severe coryza isolated from the other children. In babies particularly this condition may be followed by such disastrous results as pharyngitis, cervical adenitis, otitis media, and mastoiditis. Surely any precaution which might protect a baby from such illnesses is worth taking. One very hopeful sign is that the intelligent laity are beginning to see the necessity of isolating cases of "cold" and "sore throat", and the physician who does not advise that these precautions are carried out will be supplanted by one who does.

Typhoid fever can now be stamped out almost completely by vaccination, as shown by the convincing results reported by Major Russell in the United States Army. It is distressing however to see how slow physicians are in advising their patients as to the necessity of being vaccinated against typhoid.

What is the cause of this indifference among physicians? One reason is that they are so occupied in treating disease that they do not pay enough attention to prevention. Another and probably the strongest reason is that in our Medical colleges today, too much attention is paid to the big problems of diagnosis and pathology and not enough to therapeutics, especially to the prophylaxis of disease. It is too common a saying that anyone can treat disease, once the diagnosis is made. J. P.

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### A GOOD NAME FOR BAD DOPE

The valiant war which *Collier's* waged on patent medicine quackery has borne considerable fruit. Slowly but surely the better newspapers of the country are realizing the cheapness of the money obtained through the advertising of arrant medical frauds. Publicity, restriction of the advertising field, and laws requiring the printing of the names of dangerous drugs contained in nostrums are making rather precarious and profitless business of dope purveying. But human gullibility is still an El Dorado to

that school of vampirism which digs its gold by deluding the public. The Great American Fraud, Unlimited, has not gone entirely out of business—it has simply transformed itself into a holding (-up) corporation whose subsidiary units try to evade the laws by every possible means and to devise new ways of extracting dollars from dupes. Laws must be strengthened to prevent evasions and the campaign of publicity must be kept up by the better medical journals and by the now not inconsiderable number of decent lay publications.

In its issue of November 8, *Collier's* returns to the attack and promises a new series of articles "which will point out by what methods the newer fake remedies have established themselves and the older ones are still precariously maintaining themselves." Samuel Hopkins Adams has entitled his first communication "Oxy-fakery, the Tin-Can Sure-Cure School"—a caption which is most pat. The various oxyfakes have been exposed by some medical journals—and advertised by some others. Playing, no doubt, upon the layman's awe of the ultra-this and the wireless-that, the oxyquacks have contrived devices whose only possible virtue lies in the meaningless jargon and senseless terms which have been invented to describe the supposed action of the devices—and to befuddle the dupes. Being none-efficacious in the production of any kind of a current or in the causation of any kind of a supposed condition for which the meaningless names of "thermal diamagnetism," "diaduction," "polarity," "positivity," etc., have been invented by the oxyskinners, they are, of course, harmless in their direct application. Just as Christian Science and other things are harmless—but may be very harmful when, by pretending to have value in diphtheria, for instance, they prevent prompt and proper treatment. In the words of Mr. Adams:

Simply because a treatment is "harmless" it does not follow that it is not murderous. The lie may be the deadliest of poisons.

That such palpable frauds as those discussed by Mr. Adams should be able to find dupes, makes one almost doubt the advisability of trying to do or the possibility of actually doing anything with the kind of mind which that sort of person wears beneath its hat. Perhaps it is just as well to let them have an oxyfraud, of one kind or another. Only out of kindness to their dependents, it would be well to give them the following instructions for making an Oxyfakor, which, as will be seen, is sufficiently guaranteed by its inventor, Mr. Adams:

Take one empty tomato can. Cleanse thoroughly. Fill with dry ashes. Close tightly, and attach to each end a piece of shoemaker's thread, three feet long. To the loose end of each string attach an unused postage stamp. Before retiring at night paste one stamp firmly on the end of the nose, the other in the small of the back, and leave them there all night.

The following stamps, obtainable at any post office, should be used:

For external ailments, 1-cent stamp.

For internal ailments, 2-cent stamp.

For nervous or mental ailments, 5-cent stamp.

The Oxyfaktor should never be used with canceled stamps, as the cancellation interferes with the diaductive thermo-magnetism.

This treatment, being free, is not guaranteed to the patient. It is, however, absolutely warranted to cure any disease, ailment, or condition, internal or external, which can be cured by the Oxypathor, the Oxygenator, the Oxydonor, or any other of that ignoble company of tin-can swindles.

O. T. S.

**The Sanatogen "Grand Prix."**—A number of letters have been received recently expressing surprise that Sanatogen had been granted a "grand prix" at the Exhibition of Medical and Surgical Material held in London at the same time that the Seventeenth International Congress of Medicine was in session. The correspondents have asked what such an "honor" meant. The company which exploits Sanatogen in the United States has not been slow to apprise the American public of the award. It has gone further and has written the advertising managers of magazines—including those that had refused Sanatogen advertisements—directing their attention to the fact that Sanatogen was awarded a "grand prize," and opining that "this unusual distinction" should make plain "the desirability of the presence of Sanatogen in the advertising columns of your esteemed publication."

Those familiar with the methods of awarding prizes, medals and certificates to commercial firms and their products at expositions and exhibitions attach little weight to the "honors" thus conferred. It is a fact that most purchasers of large—and expensive—exhibit space at such exhibitions receive some kind of award which, it is tacitly understood, will be a useful advertising asset. Every one can call to mind many food products of mediocre quality that have flaunted on their labels the gold medals received at various expositions.

Nevertheless, it seemed worth while to find out just what the connection was between the commercial exhibition at which Sanatogen received the grand prize and the Seventeenth International Congress of Medicine. The following facts were developed: The commercial exhibition was entirely distinct and separate from the scientific exhibit of the Congress. It was managed and conducted by a British drug journal which had been giving annual "exhibitions" of its own for some years past, and this took the place of its regular exhibition. Immediately after the awards were made public the advertising pages of this drug journal were filled with full-page advertisements of the various products that received prizes. It may interest our readers to know that while the cottage-cheese-glycerophosphate product Sanatogen received a "grand prize" two other proprietary cottage-cheese-glycerophosphate products received "gold medals" at the same time. In the pharmaceutical department of the exhibit a widely—and fraudulently—advertised "patent medicine" received a silver medal! From the facts given it should not be difficult to appraise at its right value the "honor" conferred on Sanatogen. The fact that the exploiters of this preparation are trying to make capital out of this "award" is significant.

Among the members of the Award Jury whose names were given by this drug journal were three men of prominence in Great Britain, to whom we have written. A reply has been received from one, Dr. Stephen Paget, who says: "I was not on the jury, nor do I know anything about the matter. \* \* \* I had nothing whatever to do with the awarding of prizes."—*J. A. M. A.*

## DEPARTMENT OF THERAPEUTICS

Conducted by J. B. McGEE, M. D.

**Typhoid Fever:** In the October number of *The Therapeutic Gazette*, Charles W. Leiders reports on the theory and effect of vaccine therapy in typhoid fever, and reports cases. Extensive experience has proved positively that typhoid can be prevented by proper vaccination, and as agglutinius have been and are found just as long after inoculation as following an attack of typhoid fever, there is every reason to believe in an immunity following inoculation equal in duration to that conferred by a natural infection. In nineteen cases of typhoid fever treated with autogenous vaccine, and three with stock vaccine inaking twenty-two cases, one death occurred, or a mortality rate of 4.5 per cent. One case with relapse or 4.5 per cent relapses. As in every method of treatment, failures and successes run hand in hand; before condemning this form of therapy it is often well to see if the fault does not lie in the individual using the vaccine, rather than in the method itself. When failure results, four causes according to Emery must be considered (1) the improper selection of vaccines; (2) the improper preparation thereof; (3) incorrect doses; (4) unsuitable doses. His conclusions are: (1) The excessive increase in immune bodies or protective substances found in the blood of patients undergoing treatment with typhoid vaccine affords a sound basis on which the principles of vaccine therapy rest. (2) The negative phase, or increased susceptibility following vaccine inoculation, except in excess doses, has been proved not to be a factor in typhoid vaccine therapy. (3) The fact that vaccines in quantities sufficient to stimulate an increased production of immune bodies can be injected subcutaneously into typhoid patients without aggravating their toxic condition is another strong basis founded on clinical experience. (4) This method is without danger when administered by those with a technical knowledge of immunology, and the facilities of studying the amount of protective substances in the blood. The measure of the bactericidal power of the blood should be estimated in addition to the agglutination test, in basing properly one's knowledge of the efficacy of this therapeutic means. (5) Autogenous vaccine is the proper and most scientific method of vaccine administration. A good stock vaccine of single or inclusive strains, should be used as soon as possible after diagnosis until an autogenous vaccine is obtained. The sooner the injection, the shorter the duration of fever, and the milder the attack has been found to be. (6) In putting vaccine therapy to the test, it is best to take a middle ground between radicalism and empiricism on the one hand, and conservatism and purely scientific endeavor on the other. (7) The results so far obtained tend to show that vaccine therapy in proper hands, lowers the death rate, diminishes relapses, lessens complications, and has proven to be of value in the treatment of typhoid carriers.

**Typhoid and Rheumatism:** *The New York Medical Journal* for October 25, considers editorially the thyroid gland and chronic rheumatism. Considerable evidence has accumulated to the effect that at least a small proportion of cases of chronic rheumatism may be due to deficient functional activity of the thyroid. Among the facts which have pointed to such a connection may be mentioned the many cases in which thyroid gland has proved very beneficial and sometimes curative: the concomitance of myxedema and chronic rheumatism, thyroid treatment benefitting both conditions: the appearance of chronic rheumatism, and myxedema as a result of x-ray treatment applied to the neck for trichosis, in such a way as accidentally to produce thyroid atrophy, both disorders being markedly benefited by the remedial use of the thyroid gland: the concurrence of chronic rheumatism with fibrous degeneration of the thyroid: the disappearance of rheumatism due to



hypothyroidia on the appearance of Grave's disease, etc. This class of evidence has been suggestive, but has lacked the confirmation which the presence of histological lesions in the thyroid alone in a marked case of chronic rheumatism would furnish. Such a case has however been reported recently by Aubertin and Pascano. The patient, a woman of forty-eight years, had suffered from chronic articular rheumatism since the age of twenty years, to such a degree that all the joints had become deformed, causing distortion of the limbs, the patient being unable to ambulate at all without crutches. Sudden death having been caused by an embolus, a careful examination of all the organs showed pathological lesions, other than the resulting cardiac changes, in only one, the thyroid. In five other cases of chronic rheumatism, they also found at autopsy, lesions of the thyroid in four instances. These however were not as clearly ascribable to the thyroid as in the first case, this, however, clearly indicating that the thyroid gland must be considered as a factor in the pathogenesis of a certain proportion of cases of chronic rheumatism, particularly in those attended with deformity. Irrespective of these severe cases, there is a form of rheumatism not infrequently met with, which is distinctly due to lypothyroidea and associated with the characteristic symptoms of this condition. It consists of severe pain in the occipital region, or between the shoulder blades, which rest in bed tends to aggravate rather than improve. Such cases never yield to the salicylates, and other agents commonly used in rheumatism, but these patients gradually recover under the persistent use of desiccated thyroid gland. Care must be taken to avoid large doses. The "average dose" of the U. S. Pharmacopoeia is dangerous. The initial dose of the desiccated gland should never exceed one grain.

**Diplosal:** Leo Familier, in the October number of *Merck's Archives*, presents the claims of diplosal as a remedy. Salicylic acid has four distinct properties. It is antiseptic, keratolytic, antiparasitic, and antipyretic. The effect of salicylic acid on temperature is not the same as that of quinin, for while the latter drug inhibits the heat centers, and lowers nitrogen metabolism, and uric acid excretion, salicylic acid paralyzes the heat regulating centers, and usually causes profuse perspiration. Internally, its chief indications are in the various febrile disturbances to reduce temperature: In catarrhal and inflammatory conditions of the bladder as a disinfectant in migraine, sciatica, trigeminal neuralgia to relieve pain, and finally as specific in acute rheumatism. Theoretically, the ideal preparation of salicylic acid is diplosal, the salicylic ether of salicylic acid itself. It may be regarded as aspirin, in which the unnecessary acetic acid is replaced by salicylic acid. It is evident that this drug possesses certain advantages not possessed by the other compounds. It contains no unnecessary or harmful radicals, and is far more concentrated. It is decomposed only in the intestines where the active salicylic acid is set free. The chief indication for the use of diplosal is acute articular rheumatism, where a prompt effect can generally be obtained. The less marked results obtained in the more inveterate articular affections is probably to be explained by the absence of the diaphoretic effect of most of the other preparations. This however is an advantage in tuberculous, or otherwise weakened individuals who could not stand profuse perspiration. The greatest advantage however, lies in the almost complete absence of after effects. The drug is the least toxic of all the known salicylic acid compounds, severe intoxications virtually never occur, hence it can generally be given for a long time without interruption. It is true that diplosal will not always replace salicylic acid and its best derivatives, such as acetylsalicylic acid since it is less antiseptic and diaphoretic. It is however a valuable addition to our armamentarium and is of special value where there is a sensitive stomach, and medicine has to be given for a long period, as well as when it is necessary to avoid profuse perspiration.

**Diatheses:** Under the head of diatheses, A. Jacobi writes in the October number of *American Medicine*, stating that a large percentage of children die in consequence of a certain predisposition to succumb to fatal disease even under the most favorable external circumstances. Why is a baby strong or feeble, resistant or infirm? Heredity and family disposition, before surroundings have had an opportunity to exert their influence, decide the nature of the body and its physique. Many babies are weakly without ever showing positive symptoms of disease. Many of the feeble babies who are either retarded or actually diseased may be subsumed under a single heading: for many of them are merely imperfect. The frightful myxedema means only the absence from the circulation of thyroid secretion. The excessive nervous irritability with convulsions signifies the failure of the parathyroids, and the lack of calcium. Thus a single special article added to the defective nutrition may restore the individual to perfect health. Besides proper hygiene, that is diet and air phosphorus in substance improves cases of craniotabes, and is a valuable adjuvant as he has repeatedly taught in the treatment of tuberculous osteitis. In addition he states that it is not the fault of codliver oil that it seems to have been forgotten by some who follow other gods exclusively. Drugs are very valuable. The normal heart of the healthy child is comparatively large and strong: that of the weakly however, has either the rapid or the slow—frequently irregular—contraction of the incompetent myocardium. A child of four or six years will take one minim of a good fluid extract of digitalis twice a day after meals, for six months, without a trace of cumulation. It may be taken simultaneously with one-one hundredth of a grain of arsenic trioxide. This is for the soft tissues of the body, the very best nutrient, and may be continued for months in succession. He states that he is in earnest as to the value of this remedy as he has succeeded in sixty years in hundreds of cases of the underweight and feeble young. As a stimulant, strychnin does not deserve the universal applause with which it meets, still a discriminating physician will find many indications, except in acute or subacute myocarditis, where it is forbidden. He asserts that there is a frequent connection between the chronic weakness of an infant and child and constipation so that correction of this condition will aid the general health.

**Acidemia:** B. G. R. Williams, in the *American Journal of Clinical Medicine*, for November, considers the treatment of certain urinary conditions. As to the acidemia of copremia, we know that in certain persons, as a result of constipation, the excessive ingestion of proteids, enteroptosis, or of various other causes, certain bacteria in the colon attack the proteid foodstuffs, breaking them up into organic acids and other decomposition products, and these are absorbed and appear, at least in part in the urine, we do not know the composition of all of these substances, but certain of them are the true indicants. It is known that these bodies are poisonous, and it has been assumed, that their presence may explain, the headache vertigo, blues and other nervous symptoms which are associated with copremia. And it is evident that during the elimination of these acids the renal pareuchyma may suffer injury, and the treatment of this condition is important in the everyday practice of most of us. The man who hopes to treat intestinal acidemia by a course of alkalies alone, will occupy a position similar to that of the boy who tried to drink of the water from the leaking dam. The man who hopes to accomplish noteworthy results by administration of a single cathartic, will be but little better off. Both of these methods are not without value, but there are other principles which must be carried out if any degree of success is expected. As a whole, the treatment of copremic acidemia may be expressed as follows: (1), Reduction of the proteid diet: (2), Eliminating the focus of the intoxication: (3) Administration of antacids. Quite different from acidemia in nature is acidosis. We do not

understand this condition quite as well as we should like to: yet it seems at this time certain principles may be laid down. In diabetes, we have to treat the glycosuria, as well as to administer antacids, and so on. Next is the hyperacidity of the urine resulting from the presence of the tubercle and colon germs. He states that the acid urines of the colon and tubercle infections, are of all the most difficult to neutralize: and this should be regarded as a point of weight in the diagnosis. Very large doses of alkalies must be given, as much as a dozen grains of potassium citrate daily, to a child of two having a colon pyelitis, according to some authorities. Yet this treatment will be best in the long run, for the colon bacillus can compensate only to a certain point, and then forced to live in an alkaline medium, will quickly perish. He recalls that normal urinary acidity is not owing to free acids, but to certain acid salts, notably diacid sodium phosphate and so advises the use of this salt in alkaline urines.

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**Enuresis.** In the *Medical Record*, for November 8, B. Rosenbluth writing on the neuroses and psychoneuroses of children, states as to enuresis, that enuresis in children is of two varieties—one occurring at any time during the twenty-four hours, and found mostly in the very young, and in defectives. When it occurs in the child it is usually in one that is from three to five years of age and if the child is of normal make-up, it is due to neglect, and also to repression, from the fear of letting its wants be known. The caretaker allows the child's bladder to be filled to the point of overdistention until the child cannot hold its urine any longer, and has to void it. If this is kept up for a sufficient length of time, the child becomes habituated to wetting itself, and keeps on doing so. The cure requires close attention to the regular emptying of the bladder, and thorough cleanliness of the parts with plenty of bland powdering. The other form of enuresis occurs in older children, and is characterized in that the urination takes place only when the patient goes to bed, and after he has fallen asleep. Most of these cases occur in boys. These patients are well able to hold the urine during their waking hours, and, from fear they are most scrupulous in emptying the bladder before retiring: but no matter how soon they are awakened, the bed is found wet. Here then we have a condition where in the conscious state, there is complete and excellent control of the bladder, but as soon as consciousness is removed, *no matter with what apparent emptiness of that organ*, there is voiding of its contents, showing that this must be from the smallest amount of urine, and cannot be from overflow, but from forcible detrusion. So we must look for some mechanism that is effective during sleep, but is held in abeyance while the patient is awake. This can only be from some psychic disturbance which is repressed during the conscious state, but which comes into play during sleep. As to treatment he gives large doses of bromides before retiring, both for allaying the subconscious dream states which may give the stimulation of the lower spinal centers, and also for the same effect on the lower spinal centers themselves. Besides daily tepid baths are very useful in lowering nervous irritability. Some patients take more kindly to a cold pack in which the patient is allowed to remain for about half an hour, and thus it becomes tepid from the warmth of the body. Sometimes he has to reinforce the bromides with antipyrin. The treatment has to be kept up for a long time, three or four months, and even five is necessary for permanently overcoming the annoyance.

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**Pulmonary Diseases:** In *The International Clinics* (Vol. III, 23rd series, 1913) John B. Huber presents some practical points in the management of some pulmonary diseases. Hypostatic congestion, or hypostatic (basic) pneumonia, is a more or less com-

plete stagnation of blood in the pulmonary tissues. This is also a passive congestion, and it depends upon one or more of three factors: (1), Failure of the heart, with inability to propel the blood through the pulmonary capillaries. (2) An altered condition of the blood, making difficult its passage through the capillaries. (3) The attraction of the blood by gravity to the most dependent parts. Thus, we have this form of congestion in lower protracted fevers, as in typhoid relapses, cerebral apoplexy, prolonged coma, morphin poisoning, adynamic states, chronic tuberculosis, or cancer cachexia, also where by weakness or inanition, there is prolonged maintenance of the recumbent posture without change of position. We fear it most after surgical operations, in extreme old age, toward the end of a prostrating illness where the heart beat is feeble, and in uremic and icteric conditions. The treatment must be directed to the related conditions. The position is changed from time to time. The patient should, if possible, be encouraged to take long inspirations, good food and alcoholic stimulants are indicated for the failing powers. Nutritive enemata may be necessary. In all exhausting diseases, we anticipate, and if possible, ward off this congestion by timely support and stimulation. Ammonia, ether, quinin, musk, camphor, are drugs which will prove effective. Camphor in ether (1 in 8), may be given subcutaneously, or camphor and strychnin by mouth. In pulmonary edema, there is a hyperemia with hydremia, there is transudation of serum through the alveolar walls into the air spaces. The edema may be local, due to a circumscribed inflammatory lesion, or it may be general and from causes which produce congestion. Death may supervene within an hour. From attacks of moderate severity, there may be recovery. As to treatment, one must act quickly. Dry cupping over the lungs and kidneys, not so much to draw blood as to promote absorption. The posture must be changed from time to time, applications to the chest, fermentative turpentine stupes mustard poultices. Venesection may be appropriate. Purgatives and diuresis are essential, oxygen inhalations may be effective. Drugs used are strophanthus, digitalis, juniper caffein, spirit of nitrous ether, ammonium acetate, camphor in ether (1 to 8) strychnin advenalin, atropin, etc. In treatment, the causes of the edema must be kept in mind.

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**Chorea:** In the November number of the *Medical Review of Reviews*, William Lucas treats of the value of prolonged hot baths in the treatment of chorea in children. From a therapeutic standpoint, there are few conditions that are at times more difficult to treat than choreic conditions in children. Arsenic in Fowler's solution has been used very extensively, but everyone who has tried it, has found cases which do not respond to arsenic. It is questionable whether in cases where it has been considered to be of some value whether the rest in bed, which often accompanies it, irrespective of any medical treatment, has not been the real cause for improvement. In the same way bromides and chloral have been advocated by many as the logical method of treating these choreic cases. The use of large doses of bromides or chloral in many cases proves of no permanent value. At times when children are under the therapeutic effect of large doses, their choreic movements disappear, but when the bromides are discontinued, the movements return as soon as the effect is over. Rest in bed seems to be of the greatest value in the treatment of these cases, unaccompanied by any medicinal treatment. He has had just as good results in a series of cases that were receiving Fowler's solution or bromides, as I have in a separate series of cases that have received no medicinal treatment at all, but simply rest in bed, isolated from other children. At times, however, this rest in bed is not sufficient or the results are very slow in appearing. During the last winter, he has tried the value of prolonged hot baths in several fairly pronounced choreic cases in the children's hospital of the Boston Dispensary. He reports the cases with the hope that others will try this form

of hydrotherapeutics in choreic cases, not with any idea that it is a specific treatment, but simply that it has been found of considerable value combined with rest in bed in shortening the hospital care of this class of cases. It is a form of treatment that can be applied at home just as well as in the hospital, if the other conditions for rest also are present, without rest in bed, and removal of exciting or disturbing factors, it probably would not be of very much value but with quiet and rest in bed, it certainly has been found of considerable value in his experience.

### NEW AND NON-OFFICIAL REMEDIES

Since publication of *New and Non-official Remedies*, 1913, and in addition to those previously reported, the following articles have been accepted by the Council of Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Non-official Remedies."

Gluten Food A, Barker's.—A wheat-gluten flour, containing not more than 4 per cent of carbohydrate and 87 per cent protein.

Gluten Food B, Barker's.—A wheat-gluten flour, containing not more than 7 per cent carbohydrates and 85 per cent protein.

Gluten Food C, Barker's.—A wheat-gluten flour, containing not more than 12 per cent of carbohydrates and 83 per cent protein.

Barker's gluten foods are indicated when a practically starch-free diet is desired, particularly in most forms of diabetes. It can be taken uncooked or made into muffins. Herman Barker, Somerville, Mass. (*Jour. A. M. A.*, Sept. 27, 1913, p. 1042).

Acne Bacterin Polyvalent.—For description of Acne Vaccine see *N. N. R.*, 1913, p. 221. Abbott Alkaloidal Co., Chicago.

Coli-Bacterin Polyvalent.—For description of Bacillus Coli Vaccine see *N. N. R.*, 1913, p. 221. Abbott Alkaloidal Co., Chicago.

Friedlander-Bacterin Polyvalent.—For description of Friedlander Vaccine see *N. N. R.*, 1913, p. 222. Abbott Alkaloidal Co., Chicago.

Gonococcus-Bacterin Polyvalent.—For description of Gonococcus Vaccine see *N. N. R.*, 1913, p. 223. Abbott Alkaloidal Co., Chicago.

Pneumo-Bacterin Polyvalent.—For description of Pneumo-coccus Vaccine see *N. N. R.*, 1913, p. 224. Abbott Alkaloidal Co., Chicago.

Staphylo-Acne-Bacterin Polyvalent.—For description of mixed vaccines see *N. N. R.*, 1913, p. 224. Abbott Alkaloidal Co., Chicago.

Staphylo-Albus Polyvalent.—Abbott Alkaloidal Co., Chicago.

Staphylo-Albus-Bacterin Polyvalent.—Abbott Alkaloidal Co., Chicago.

Staphylo-Bacterin (Human) Albus-Aureus-Citreus.—For description of Staphylococcus Vaccines see *N. N. R.*, 1913, p. 225. Abbott Alkaloidal Co., Chicago.

Strepto-Bacterins (Human).—For description of Streptococcus Vaccines see *N. N. R.*, 1913, p. 226. Abbott Alkaloidal Co., Chicago.

Typho-Bacterin Polyvalent.—Abbott Alkaloidal Co., Chicago.

Typhoid Prophylactic.—For description of Typhoid Vaccine see *N. N. R.*, 1913, p. 227. Abbott Alkaloidal Co., Chicago. (*Jour. A. M. A.*, Oct. 4, 1913, p. 1297.)

Ninhydrin.—Ninhydrin is triketohydrindenhydrate a derivative of inden. Colorless crystals, readily soluble in water. The aqueous solution gives a blue color on boiling with protein bodies or amino acids derived from them, which have the amino group in the alpha position. Ninhydrin is used in the diagnosis of pregnancy according to the method of Abderhalden. Farbwerke-Hoechst Co., New York. (*Jour. A. M. A.*, Oct. 11, 1913, p. 1377.)

Placentapeptone.—A peptone derived from the placenta. It is used in applying the optical test for pregnancy according to Abderhalden. Farbwerke-Hoechst Co., New York. (*Jour. A. M. A.*, Oct. 11, 1913, p. 1377.)

Antirabid Vaccine.—It is prepared according to the method of Pasteur and is a complete treatment, consisting of 25 doses, to be administered during 21 days. Schieffelin and Co., New York. (*Jour. A. M. A.*, Oct. 11, 1913, p. 1377.)

Coper Citrate, Merck.—This salt complies with the standards for copper citrate, N. N. R., Merck and Co., New York. (Jour. A. M. A., Oct. 11, 1913, p. 1377.)

Transfer of Agency.—The biologic products of the Sophian-Hall-Alexander Laboratories which were accepted for inclusion with N. N. R., are now sold by E. R. Squibb and Sons. (Jour. A. M. A., Oct. 11, 1913, p. 1377.)

Since October 1 the following articles have been accepted for inclusion with "New and Nonofficial Remedies":

Abbott Alkaloidal Co.:

Strepto-Bacterin (Scarlatina Bacterin).

Antistreptococcic Vaccine (Scarlatina Prophylactic).

The Bayer Company, Inc.:

Tannigen Tablets, 8 grs.

Farbwerke-Hoechst Co.:

Silk Peptone "Hoechst."

At the request of the manufacturer the Council has voted to reconsider the acceptance of and to omit the following from "New and Nonofficial Remedies":

The Bayer Company, Inc.:

Alypin Tablets,  $3\frac{1}{3}$  grs.

Alypin Tablets,  $1\frac{1}{8}$  grs.

Alypin Tablets,  $\frac{3}{4}$  gr.

Citarin Tablets, 15 grs.

In view of the report of untoward effects from Hormonal and the claim of the manufacturer that the product now on the market differs from that described in "New and Nonofficial Remedies," the Council has rescinded the acceptance of Hormonal (Hormonal, Intramuscular and Hormonal, Intravenous), Schering and Glatz.

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**Excessive Bacteria in Milk Leads to Heavy Fines and Jail Sentence.**—Notices of judgment, just issued by the Department of Agriculture, Washington, D. C., state that fines have been imposed on several shippers of adulterated milk and cream.

John Fisher, Newport, Kentucky, was fined \$100, and sentenced to 60 days imprisonment for shipment from Kentucky into Ohio of milk and cream alleged to be adulterated. Some of the product was labeled on the cap:

"Guaranteed Pure Milk. Please put bottles out every day."

Twenty-nine samples of milk, analyzed separately, were either skimmed or skimmed and watered, and all contained visible sediment of dirt and filth. Five samples of alleged cream were found to contain only 12.5 per cent of milk fat and to be artificially colored with annatto.

Adulteration of the product was alleged because the milk and cream consisted in part of filthy and decomposed animal and vegetable substance, since they contained an excessive number of bacteria, including members of a group known as "B. coli."

The 60 days jail sentence was suspended on condition that the defendant keep out of the milk business.

The Lehigh Valley Railroad Company, was charged with having sold on its dining car so-called "cream," which contained excessive numbers of objectionable and unhealthful bacteria, and was fined \$25 and costs, since the transaction involved the shipment from Pennsylvania into New Jersey of said milk and cream. Adulteration was alleged for the reason that said products consisted in whole or in part of a filthy and putrid animal and vegetable substance.

Ralph S. Richardson, of Pierceville, Indiana, was fined \$25 and costs for shipment into Ohio of a quantity of milk alleged to be adulterated. The adulteration charged in this case was that water had been added to the milk. The court imposed a like fine on Hubert E. Nead, also of Pierceville, Indiana, upon a similar charge.—*U. S. Department of Agriculture.*

## The Academy of Medicine of Cleveland

### THE OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The Sixty-eighth regular meeting of this Section was held at the Cleveland Medical Library, Friday evening, October 24th, 1913; Chairman C. C. Stuart in the chair.

W. E. Bruner presented a case of penetrating injury of the eye, followed by an almost complete anirida and a traumatic cataract. Needling resulted in a small opening giving 6/6 vision with correcting lenses.

S. Monson presented a case of Buphthalmos in a boy of eight. First observed at three months and becoming slowly more marked. Vision now reduced to counting fingers at one meter. The question is, whether any therapeutic measures are indicated to attempt the arrest of the progress of the disease.

W. E. Bruner suggested that in as much as there is an increased intraocular tension, trephining might be considered.

W. C. Tuckerman presented a case of a microphthalmic right eye, the other eye being normal. The affected eye shows nothing abnormal externally except a rather small cornea. Patient always thought it a good eye, and only consulted an oculist on account of a cut which he had accidentally received on the lid of this eye, and to which he attributes its defective vision. The ophthalmoscope shows a typical case of microphthalmus with a posterior staphyloma of the sclera and a large coloboma of the choroid.

J. N. Lenker called attention to the difficulty in a medico-legal case of convincing a jury of the fact that the defective vision in such a case was independent of the accident.

L. K. Baker pointed out the injustice of referring the injuries of the eye to the general practitioner.

J. S. Cogan said that the law does not recognize specialists in medicine.

W. E. Bruner pointed out that this case, in addition to the lesions mentioned, presented the rare condition of a staphyloma of the optic nerve. He inquired as to the tension of the eye.

W. C. Tuckerman said that the tension of both eyes is about equal and within normal limits measured by the tonometer.

The regular program was as follows:

#### 1, Report and Presentation of a Case of Rhinoscleroma, by J. M. Ingersoll.

W. H. Tuckerman gave this history:

Patient, an Hungarian girl of 22 years of age, in this country two years, was brought to the City Hospital with severe dyspnea.

Mucous lining of the larynx apparently hypertrophied, leaving only a narrow slit for breathing. Tentative diagnosis, papilloma of the larynx. Tracheotomy was imperative. In addition to the lesions in the trachea, the turbinates are markedly hypertrophied and are nodular and hard. There is no involvement of the trachea below the larynx.

J. M. Ingersoll added that one Wasserman was negative. A second, as well as pathological findings had not yet been reported. Rhinoscleroma is the most probable diagnosis. This is somewhat doubtful on account of the youth of the patient and the advanced involvement of the larynx with only moderate nasal disturbance.

W. H. Tuckerman mentioned a similar case in Chiari's Clinic of a boy of 19. In this case, however, the trachea was involved up to the bifurcation. Treatment consists principally in dilatation. Various operative measures give unsatisfactory results.

Leo Wolfenstein inquired as to the prognosis.

J. N. Lenker asked as to further history, noting that most cases of the disease arise in damp climates.

J. M. Ingersoll could give no further history, as no interpreter could be found, who understood the patient's dialect. As to prognosis: Some cases are self limited and improve; many come to a standstill; but some progress until enormous lesions result. Of the last some illustrations were presented.

Surgical treatment is unsatisfactory.

Vaccines have been used with some success.

The X-Rays give the best hope and will be attempted in this case.

## 2, Report of a Laryngeal Case, by J. N. Lenker.

The patient, who was present, gave a history of persistent hoarseness without any other signs of a cold. Laryngoscopic examination revealed a small mass on the right cord the size of a pea. The general appearance was that of a carcinoma. Diagnosis confirmed by the pathologist. The entire larynx was removed (specimen presented) under local anaesthesia. Feeding tube passed through the nose. The wound became infected and the stitches all sloughed out. Healing by granulation. The patient now is well and strong and is gaining in weight. He speaks fairly well, can eat anything and smokes. There has been no sign of any recurrence and there is no glandular enlargement. This indicates the wisdom of complete extirpation rather than hemilaryngectomy even though only one side appears involved.

J. M. Ingersoll complimented the doctor on his success and heartily agreed in regard to the wisdom of complete removal of the larynx in such cases.

## 3, Report of a Case of Concussion Cataract, by D. A. Prendergast. (To Appear in Full in the Journal)

Patient a man aged 26 years, was struck with a blunt object upon the left temple. Blurred vision in the left eye noticed a week later and within five days the eye had become totally blind. Examination showed right eye normal. Left eye exterior normal, lens entirely cataractous. No sign of any wound in eyeball, no posterior synechia. Pupil active to light and distance. Anterior lens capsule intact. X-Ray examination was negative. Discission was delayed, the reason being that if the posterior capsule was injured, the vitreous might absorb the cataract. At the end of a month the condition being unchanged a discission was done, followed by complete absorption. No tearing of the posterior capsule to be seen. Vision with correcting lens is 6/9.

C. C. Stuart had a boy of ten who was struck in the eye with a stick. No lesion of the eyeball could be found, but a cataract followed. Discission resulted in complete absorption and normal vision with lens.

W. E. Bruner said that cases of concussion cataract due to blows in the eye were fairly common; while those due to violence applied to any other part of the head are very rare. In the latter cases, however, the cataract always appears in the eye corresponding to the side of the head which has received the blow.

L. K. Baker had a man of 69, who was hit on the side of the head. This was followed by dislocation of the lens, which became cataractous.

## 4, Report of Three Cases of Ritinitis Pigmentosa, by M. W. Carpenter.

(Appears in Full in the Journal)

The childship, of which these cases forms a part, consists of a brother, 24 years of age and a sister, 21 years of age, normal, and a sister 29 years of age, two brothers 18 and 16 years of age. The last three are affected.



Family history on the father's side negative. Mother myopic three diopter. Her father died at the age of 86, and was able to read without glasses all his life. Her mother had poor vision the greater part of her life. Mother has a brother and sister said to be normal, as are the sister's four children. The brother has two sons, ages 19 and 14, both of whom have defective vision. There is no history of consanguinious marriages as far back as known.

Case 1. Boy, age 16, first noticed failing vision at twelve. He was given vigorous mercurial treatment to no effect and vision became rapidly worse for six weeks. Since then eyes are apparently at a standstill. Vision is 3/60 in each eye. There is no night blindness, preference for dim light. Exterior of the eyes is normal. Rotatory nystagmus. Fundus is pale red color, discs pale. Larger retinal vessels contracted and smaller ones not visible. Area of choroidal atrophy in the right eye, in the upper and outer quadrant. Otherwise no pigmentation. Vision not improved with lenses. All fields are moderately contracted—Relative Ring Scotoma. In this patient as well as in other two and mother, Wasserman test has been repeatedly negative.

Case 2. Boy, age 18 years. History the duplicate of first case. There is no night blindness. Exterior of eyes normal. No nystagmus. Vision 3/60 in each eye. Nerve head and the rest of the fundus very pale. No pigmentation around disc, but all over the rest of the fundus is found the characteristic pigmentation. Fields are moderately contracted and there is a ring scotoma.

Case 3. Woman, 29 years of age. Thinks vision began failing at an early age, but certainly had difficulty in reading at the age of twelve. For years now the condition is stationary. Much difficulty in seeing in dim light. Vision 6/60. Fields moderately contracted. Ring scotoma. Disc pale. Retinal vessels contracted. About macula glistening white dots. A short distance from the macula the fundus begins to be studded with black and white dots, the former increasing and the latter decreasing in number until at the equator and beyond only the black dots are found. This marked pigmentation is of comparatively recent origin, as Dr. Shackleton saw the case one year ago and noted only slight pigmentation. These cases are of special interest, as they represent three different types of disease in the same family.

In absence of some of the clinical symptoms of retinitis pigmentosa, such as lack of night blindness in the first two cases and the poor central vision in all, the possibility of syphilitic choroido-retinitis might be considered. But the repeated negative Wassermans, the fact that the case treated with anti-syphilitics had the same course as the others, and the familial character would exclude any doubt as to the diagnosis.

Edward Lauder recalled a family which he had reported in which five brothers were affected, all of the sisters and several other brothers escaping. In this case, too, there was no consanguinity, the parents even being of different nationalities.

#### 5, Report and Presentation of Cases of Injury to the Eye. by Steel, by W. E. Bruner.

Case 1. A small piece of steel had penetrated the eyeball and lodged in the iris. Removed by incision in the cornea and by a small magnet. At present the pupil is slightly deformed, being attached to the anterior lens capsula at the point where the foreign body had been. Vision 6/6.

Case 2. A foreign body had penetrated the eyeball. The case was not seen until three weeks after the accident. Located by X-Rays in the vitreous, there being no distinct view of the fundus on account of opacities. The foreign body was removed by a scleral incision and large magnet. The vitreous remains cloudy. Vision—counts fingers.

Case 3. Patient was seen twenty-four hours after the injury to

the eye. No view of the fundus, but a movable mass could be discerned in the vitreous. X-Rays showed a foreign body in the sclera on the temporal side and above the disc. The Haab Magnet applied repeatedly and for many successive days could not dislodge the foreign body. Meanwhile the hemorrhages and opacities in the vitreous cleared up until the foreign body was plainly visible with the Ophthalmoscope, and could be seen to move when the magnet was applied. Six weeks later the eye was quiet, the media clear, except for some blood in the bottom of the vitreous chamber and vision was 6/5. At present the eye is quiet and the fundus normal, except that at the site of the foreign body is a white elevated patch with pigmented edges, giving at first sight the appearance of a spot of choroidal atrophy. Vision continues good.

Case 4. Patient was seen one hour after the accident. He was struck in the eye with a splinter of steel. No point of entry of the foreign body could be discerned, but it could be seen in the vitreous with the Ophthalmoscope. Removed with scleral incision and Parker Magnet. No reaction. Vision 6/5.

J. E. Cogan presented several reading charts with graphic illustrations of the inaccuracies found in the commercial visual test cards.

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## CLINICAL AND PATHOLOGICAL SECTION

The ninety-sixth regular meeting of the Section was held Friday, November 7th, 1913, at 8:15, at the Cleveland Medical Library.

The program was as follows:

### 1. Further Observations of the Complement Fixation Test in Gonorrhea by H. L. Rockwood.

H. L. Rockwood said that in any infection the surest test will always be the isolation and observation of the specific infecting organism. No claims of greater accuracy can be made for any other method of diagnosis. Nevertheless, in a number of the infectious diseases such as typhoid, tuberculosis, syphilis and gonorrhœa, numerous conditions arise in which a successful search for the specific organism presents insurmountable difficulties.

Specific antibodies arise from the presence of the respective organisms in these various diseases. They represent the opposing forces of resistance which the patient has furnished in meeting the onset of the disease. In cases of acute gonorrhœal urethritis of short duration, the blood serum shows no evidence of antibodies. These do not appear in sufficient amount to respond to the fixation test until the beginning of the third week.

Probably the most serviceable application of this test is in cases clinically cured. A number of these give a positive blood reaction. In the local complications of gonorrhœa in the male such as epididymitis and prostatitis, seventy-five per cent of a series of 42 cases gave positive reactions. In the diagnosis of arthritis most cases give a positive finding when the condition occurs during the active gonorrhœal infection.

The general conclusion at the present time is that in this test we have a means of indicating the presence or absence of an active gonorrhœal focus which may be considered accurate except in the early acute stage, in over eighty per cent of all cases.

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### 2. An Efficiency Test of Dispensary Treatment of Gonorrhœa. One Hundred Cases, by H. L. Sanford.

Dr. Sanford, in presenting a discussion of the treatment of gonorrhœa, covering one hundred cases which were registered at Lakeside hospital dispensary, said that it would be an economic saving to the city of Cleveland to provide an adequate number of ward beds in its municipal hospital for cases of venereal disease with acute disabling symptoms.

Gonorrhœal rheumatism and gonorrhœal epididymitis under ambula-

tory treatment produce a total disability which varies from a few weeks to several months according to the living conditions of the patient. Unless the patients have a great deal of moral stamina, they are apt to become discouraged and lose their grip on life and meanwhile they and their families fall into the hands of the Associated Charities or seek city relief.

Dispensary authorities should assign male workers to the dispensary genito urinary clinic. The dispensary physician should not be expected to look out for matters of food, clothing, employment, and support of the families of the patients. Many lines of endeavor suggest themselves for the social worker to follow. He may intercede with the patient's employer and prevent him from losing his job.

The dispensary physician can very largely influence the results obtained in the clinic by the human interest he takes in his patients. It is hard in the busy routine of the clinic to bear this in mind, but it can not fail to accomplish results.

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### 3. Drainage of the Seminal Vesicles, (Lantern Slide Demonstration.) J. Bentley Squier, New York City.

It was made plain by J. B. Squier's paper that indications for the drainage of the seminal vesicles can be summed up in three words, pus, pain and rheumatism. Under the heading of pus are those acute cases developing in the course of a gonorrhoeal affection often mistaken for prostatic abscess, in which the perivesiculitis present simulates prostatic enlargement to the rectal touch. Under the same heading may be included cases of recurrent epididymitis following acute urethritis and vesiculitis. In addition, certain cases of chronic vesiculitis which simulate spermatorrhea, namely those in which the discharge from the urethra occurs during defecation and which have resisted faithfully carried out non operative treatment.

Under the heading of pain are placed those patients suffering from chronic vesiculitis complaining of persistent perineal ache, who go from bad to worse irrespective of treatment and eventually develop severe neurasthenia. Naturally presupposing that other possible causes for the condition have been eliminated.

Under the heading of rheumatic may be placed all those cases in which a definite relationship may be established between the antecedent gonorrhoea with vesicular invasion and the joint lesion. Such relationship is readily established in those articular inflammations occurring during the acute period of a gonorrhoea but becomes increasingly difficult to prove as the interval of time between the acute specific urethritis and the appearance of the joint lesion lengthens.

W. E. Lower, in opening the discussion, said that it is difficult to tell just when a chronic specific urethritis has been cured. The complement test, however, gives a high percentage of results. Various other affections may simulate gonococcus infection. A definite test is more important in gonorrhoea than the Wassermann in syphilis.

To localize contagion a municipality must pay attention to it. Preaching uplift is very well, but a place must be established where the disease (gonorrhoea) can be treated. Cases of small pox are not allowed to go about, but patients with gonorrhoea are permitted to spread the infection, the matter being passed over on the basis that the infection is an immoral disease.

The treatment of rheumatism is varied. If a patient with rheumatism were in London, Lane would shortcircuit his gut and cure him. If the patient should happen to visit Baltimore, Young would perform a prostatectomy and the result would be favorable. If the patient should visit Cleveland a tonsilectomy would be preferred. If he should go to New York, Squier would operate on his seminal vesicles. It is impossible to believe that a person with chronic rheumatism can be cured so quickly. W. E. Lower said that he had drained the seminal vesicles where there

was abscess formation through incisions, through the median line and to the right and left of it.

J. E. Tuckerman asked Doctor Squier what the hypothetical mortality was in operations on the seminal vesicles.

P. J. Jacobs inquired whether urethritis, generally posterior, was associated with cases of infections of the seminal vesicles and whether this cleared up, after operations on the vesicles.

H. M. Tarr wanted to know what organ in females produced the trouble in infections of the same sort as those described by Doctor Squier in the male.

Doctor Robinson, in discussion, said that the rheumatism was of various origins and that as he understood it, the position of Doctor Squier in operating on the seminal vesicles for relief of rheumatism, only applied to those cases where the disease could be treated with some accuracy to the seminal vesicles as a factor in the trouble.

H. L. Sanford asked, in how chronic a case would drainage of the seminal vesicles be effective? He cited the question relative to a patient who had a bony deposit in the spinal column.

J. B. Squirer in reply, said that his position relative to operation on the seminal vesicles was a conservative one. The arthritis in such cases, is secondary. The seminal vesicles have been undermined previously and a secondary infection is superimposed then, which causes the trouble. The causes vary and can only be determined after a careful examination.

Relative to Doctor Sanford's patient, he declared that he did not know whether an operation in such a case would be beneficial or not. If one were certain that the patient in question had had gonorrhoea and all other treatment had failed, it might be tried.

As to the mortality Doctor Squier said that he had operated on forty-five cases without a fatal result.

Urethritis often occurs in connection with infection of the seminal vesicles and drainage of the latter, has proved beneficial for the former condition.

The tubes in females are the analogues of the seminal vesicles in the male.

It is not to be inferred that all rheumatism is due to gonorrhoea and infection of the seminal vesicles.

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### COUNCIL MEETINGS

At a meeting of the Council of the Academy of Medicine held Wednesday, November 12th, 1913, at the Bismarck, the following members were present: the President, H. L. Sanford in the chair. Doctors Merriam, Ford, McGee, Laffer, Perkins, Spurney, Follansbee, Kopfstein, Storey, Updegraff, Tuckerman, and by Invitation Doctors J. J. Thomas and A. F. Furrer.

The minutes of the last meeting were read and approved.

On motion the following were elected to Active Membership: Samuel B. Cohen, Rudolph Engel, Harold Feil, Kent K. Hastings, Leonard Ravitz, F. W. Riley, John S. Suva.

The names of the following applicants for Active Membership were ordered published: T. R. Kennerdell, Samuel C. Lind, Pio Hiloni, Jay S. Sharp, H. R. Wahl.

At the request of J. J. Thomas, A. F. Furrer read the following communication from the Belle Vernon-Mapes Dairy Co., together with the minutes of the meeting of the Milk Commission held November 7, 1913.

September 3, 1913.

Dr. A. F. Furrer, Sec'y.,

Milk Commission of the City of Cleveland,  
1110 Euclid Avenue,

Dear Dr. Furrer:

Since going over matters in the Modifying Laboratory, I have decided to request that the Commission assume regular supervision of the Laboratory and the modifying of milk for infant feeding, and you may treat this letter as a formal application to the Commission for this service. I believe that better results will be obtained from such a plan. Any expense involved in this service this Company will be glad to bear.

I take this occasion to assure you that it is the desire of this Company to do this work with full compliance with the wishes of the Commission.

Very truly yours,

THE BELLE VERNON-MAPES DAIRY CO.,

(Signed) J. H. Coolidge, Jr.

At a special meeting of the Milk Commission held November 7, 1913, a motion was made that whereas on September 3rd, 1913, a request had been made by the Belle-Mapes Dairy Co., that the Commission assume regular supervision of the Laboratory and the modifying of milk for infant feeding.

It was resolved to ask the Council of the Academy of Medicine whether or not the original powers conferred on the Commission included such supervision and if not the Milk Commission recommend that this function be conferred on the Commission.

J. J. Thomas requested that the Commission be empowered by the Academy to enlarge their scope of action.

R. G. Perkins made the following motion which was seconded by R. K. Updegraff.

Moved: That the Milk Commission be empowered to supervise the methods of preparation of modified milk by the Walker-Gordon Laboratory, and to enter into a contract with the Belle Vernon-Mapes Dairy Company to that end.  
The motion carried.

**The Ohio Medical Board on the Sale of Narcotics.**—At the meeting of the State Medical Board on October 14th, a resolution concerning the recently amended law governing the sale of narcotics, was adopted and a copy of the resolution follows:

WHEREAS, The modification of the Poison Law, Sec. 12672, by the last General Assembly has for its object the restriction of the sale of habit forming drugs so as to check the enormous evil and its alarming increase in recent years, and

WHEREAS, The Agricultural Commission is seeking to strictly enforce the spirit of this law without bias, and

WHEREAS, Pharmacists throughout the state have pledged themselves to the assistance of the Agricultural Commission, and have placed the responsibility of furnishing morphine, cocaine and allied drugs clearly upon the medical profession.

THEREFORE, BE IT RESOLVED, that the Ohio State Medical Board heartily endorses the intent and spirit of this law, and pledges its earnest co-operation to the Agricultural Commission in its enforcement. It will not countenance the furnishing of morphine, cocaine and allied drugs by prescription for other than absolutely legitimate purposes, and will aid in the punishment by all means in its power of cases of violation of the spirit of the law.

Another resolution, expressing the sentiments of the Medical Board with reference to the practice of specialties adopted at the same time, is herewith published.

WHEREAS, The engaging in the practice of the various special departments of the practice of medicine presupposes superior training and knowledge in those subjects, and

WHEREAS, The rapid increase in the number of so-called specialists in recent years, leads to the danger of the assumption of these superior qualifications without adequate preparation.

THEREFORE, BE IT RESOLVED, That it is the opinion of The State Medical Board that some legislative enactment be sought to guard against the unwarranted assumption of special knowledge and skill, to wit: That all practitioners desiring to practice a special branch or branches of the practice of medicine, after showing evidence of good standing, shall give further evidence of having received additional adequate instruction in such branch or branches, and pass a satisfactory examination by a committee of three practitioners of such branch or branches, appointed by this Board, and shall then receive a certificate of proficiency which shall entitle them to practice as specialists in the respective subjects; and

THEREFORE, BE IT FURTHER RESOLVED, That a copy of these resolutions be sent to the various medical societies of the state for their consideration.

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**Warning Against a Prescription Fraud.**—The Department of Agriculture, under the Food and Drugs Act, has recently been investigating a new trick of certain patent medicine and proprietary medicine vendors which it is believed is deceiving a large number of people into spending money for patent medicines under the impression that they are getting regular physicians' prescriptions for nothing.

In a number of publications the Department finds advertisements are appearing which state that the man or woman whose name is attached was saved from death from one of a number of serious diseases through some wonderful prescription given to him or her by a regular physician of unusual skill who will not allow his name to be used because of medical ethics. The advertisement states that the writer feels it to be a duty to communicate this invaluable recipe to humanity in order to save them from similar ills. The offer is then made to supply this prescription without charge to any one who will address a post card to the advertiser. People who do not stop to wonder who is to pay for the advertisement and the return postage and writing of the prescription are caught by this fraud and ask for the prescription. In due course a regular prescription is returned. This contains a number of ordinary ingredients and then under a technical name will call for a large proportion of some patent medicine or proprietary drug. The recipient takes this to a drug store to be filled and the druggist finds that he has to buy some of this patent preparation to fill it. He, therefore, has to order a large package or bottle of it and to make a profit must charge the customer a good, stiff price for filling the prescription. The customer, of course, gets what is in effect simply a patent medicine which, save that it bears a druggist's label and a prescription number, is the same as a patent medicine sold under the maker's own label and in the maker's own bottle.

The Government can not reach these people under either the Food and Drugs Act or the Postal Laws, because the scheme is so planned as to avoid Government laws. The deception and misrepresentation appears in advertisements, circulars, letters, etc., separate from the package and the medicines are seldom sent through the mails. The best the Department can do therefore, is to warn the people to be particularly suspicious of those who spend money for advertising space, postage and letter writing, seemingly out of their love for humanity. In all of these cases there is a profit-making scheme back of the seeming philanthropy.

## BOOK REVIEWS

**Glycosuria and Diabetes.** By F. M. Allen, A.B., M.D., Octavo, 1,200 pages, \$9.00. W. M. Leonard, Boston, 1913. Harvard.

This work consists of two parts, a review of the literature of glycosuria and experimental diabetes, and an account of the author's own experiments bearing on the same subject. Although of such dimensions as to lead one to expect a considerable amount of useless padding, this is by no means the case, for the book is filled from cover to cover with material that is directly or indirectly applicable in such a detailed exposition of the subject as it professes to be. The reviews of previous work are accurately and clearly summarized and they are arranged in relationship to one another in such a way as to make their perusal most interesting and instructive. In the first few chapters the assimilation of the various carbohydrates are discussed, this being preceded by a survey of our knowledge concerning the sugar content of the blood and urine. The most noteworthy conclusion which the author draws, partly from the work of others and partly as the outcome of his own work, is that there is really no assimilation limit for the simple sugars in the healthy animal, although this is the case for those that are diabetic. He emphasizes the fact already pointed out of workers in Lusk's laboratory, that administration of dextrose by any other method than subcutaneous, causes in normal animals a condition of anuria which lasts for several hours and is then followed by polyuria. In diabetic animals, on the other hand, dextrose however administered, causes immediate polyuria. He suggests that observations on this point might prove of value in the diagnosis of early cases of diabetes in man. By applying this test to animals exhibiting the various forms of experimental glycosuria he finds that none is truly diabetic except that produced by pancreatectomy. The effects following excessive ingestion of sugars are ably discussed and most important conclusions are drawn concerning the value of such feeding in debilitated conditions. It is shown, for example, that a nutritional crisis may be tided over by supplying abundance of circulatory sugar, that continued excess of sugar in the blood does not necessarily lead to fat deposition and that such excesses do not lower the so-called assimilation limits, that is to say, they do not in themselves predispose to diabetes. Present day knowledge concerning those forms of glycosuria produced by adrenalin, phloehogin and pancreatectomy are reviewed and a conservation and well balanced chapter is added concerning the absurd polyglandular hypothesis of diabetes. As well as being absolutely indispensable for laboratory workers in the field, the volume must prove itself to be of very great value to practitioners who are anxious to apply therapeutically the very latest that is known regarding diabetes. A most valuable bibliography completes the book.

J. J. R. M.

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**Diagnosis of Bacteria and Blood Parasites.** By E. P. Minett, M.D., D.P.H., D.T.M. & H., M.R.C.S., L.R.C.P., Assistant Government Medical Officer of Health and Bacteriologist. British Guiana; Late Assistant Bacteriologist, Guy's Hospital; Late Bacteriologist; Royal London Ophthalmic Hospital; Late Research Bacteriologist, Cancer Institute, Brompton. Second edition, cloth, 80 pages; price \$1.00. Paul B. Hoeber, 69 East 59th street, New York, 1913.

This little book, while quite elementary in character, nevertheless contains sufficient data to make it a valuable laboratory guide for the small private laboratory. The outlines for bacteriological diagnosis are clear and concise; the staining methods correct, and the technic of blood examinations accurate. This work could in no way supplant the more elaborate works on clinical microscopy and bacteriology in a well equipped laboratory.

H. O. R.

**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, Philadelphia; assisted by Leighton F. Appleman, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. Vol. XV, No. 3. Whole No. 59. Vol. III, September, 1913. Diseases of the Thorax and Its Viscera, Including the Heart, Lungs and Bloodvessels—Dermatology and Syphilis—Obstetrics—Diseases of the Nervous System. 310 pages. Six dollars per annum. Lea & Febiger, Philadelphia and New York.

In the September number of *Progressive Medicine*, Diseases of the Thorax are reviewed by William Ewart; Dermatology and Syphilis, by William S. Gottheil; Obstetrics, by Edward P. Davis, and Diseases of the Nervous System, by William G. Spiller. In none of these fields have there been any wonder arousing achievements during the past year. As would be expected from such a group of reviewers, the worth while literature of the year has been covered. Lest the reader suppose that the number is merely reviews, even of the *Progressive Medicine* type of excellence, special commendation must be given to Ewart's forty-nine page discussion of tuberculosis. This is a survey of our present state of knowledge—and it is more—it is literature. When a medical Englishman writes well, he does it exceptionally well, and Ewart's article can be read with pleasure as well as with profit. If we give now a word to what he says, rather than to the way in which he says it, it is merely to point out the high place which he gives to surgery in the treatment of phthisis. In the general consideration of the physical diagnosis of thoracic conditions, Ewart gives considerable space to the value of dorsal spinal percussion in marking out changes in the oval interspinous dulness as aids to the early diagnosis of a number of intrathoracic manifestations. O. T. S.

#### **Malaria—Etiology, Pathology, Diagnosis, Prophylaxis and Treatment.**

By Graham E. Henson, M.D., member American Medical Association, Florida Medical Association, American Society of Tropical Medicine, Medical Reserve Corps, United States Army (Non-Active List), \$2.50. C. V. Mosby Company, St. Louis.

This book represents a very useful type for casual medical reading. It deals with the subject of malaria in a more complete way than is possible in a text book and yet not to the degree of tiresome detail. It is obviously not designed to be a book for detailed reference, but rather a practical treatise on malaria, especially from the standpoint of prophylaxis and public health. The author believes that the elimination of the gamete carrier by thorough treatment is quite as necessary for the ultimate eradication of the disease as the elimination of breeding places for mosquitoes. The subject is introduced by a very interesting historical account and summary of the geographical distribution of the various forms of malaria. The life cycles of the parasites are clearly presented with appropriate diagrams. The literature in reference to the etiology of recurrences is well epitomized under three headings, namely: parthenogenesis, intracorporeular conjugation and asexual reproduction by schizogony. The book is well arranged and the style clear. V. C. R.

#### **ACKNOWLEDGEMENTS**

Practical Medicine Series, Vol. VII, 1913, Obstetrics. Edited by Joseph B. DeLee, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School. With the collaboration of Herbert M. Stowe, M.D., Series 1913. Price, volume \$1.35. Price, series \$10.00. The Year Book Publishers, Chicago.



Indigestion, Constipation and Liver Disorder, by G. Sherman Bigg, Fellow of the Royal College of Surgeons, Edinburgh, member of the Royal College of Surgeons, England; late Surgeon-Captain of the Army Medical Staff; Staff Surgeon, Allahabad, India. Price, \$1.50 net. Paul B. Hoeber, New York, 1913.

The Administrative Control of Smallpox, by W. McC. Wanklyn, B.A., Contab., M.R.C.S., L.R.C.P., P.D.H., Fellow of the Royal Society of Medicine, Fellow of the Society of Medical Officers of Health, and formerly Referee in the Diagnosis of Smallpox and Medical Superintendent of the River Ambulance Service (Smallpox) of the Metropolitan Asylums Board. Price, \$1.10 net. Longmans, Green & Company, London and New York, 1913.

The Human Body and Its Enemies, A Textbook of Physiology, Hygiene and Sanitation, by Carl Hartman, B.A., M.A., Instructor in Zoology, University of Texas, and Lewis Bradley Bibb, B.A., Attending Physician, Austin Sanitarium. 247 illustrations. World Book Company, New York, 1913.

Diagnosis of Bacteria and Blood Parasites, by E. P. Minett, M.D., D.P.H., D.T.M. and H., M.R.C.S., L.R.C.P., Assistant Government Medical Officer of Health and Bacteriologist of British Guiana. Second edition Price, \$1.00. Paul B. Hoeber, New York, 1913.

A Practical Treatise on Medical Diagnosis. For Students and Physicians. By John H. Musser, M.D., LL.D., late Professor of Clinical Medicine in the University of Pennsylvania; formerly President of the American Medical Association, etc. New (sixth) edition, revised by John H. Musser, Jr., B.S., M.D., Instructor in Medicine in the University of Pennsylvania; Assistant Physician to the Philadelphia Hospital; Physician to the Medical Dispensary of the Presbyterian Hospital; Physician to the Medical Dispensary of the Hospital of the University of Pennsylvania. Octavo 793 pages. with 196 engravings and 27 colored plates. Cloth, \$5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

A Manual of Surgical Treatment. By Sir W. Watson Cheyne, Bart., C.B., D.Sc., LL.D., F.R.C.S., F.R.S., Hon. Surgeon in Ordinary to H. M. the King; Senior Surgeon to King's College Hospital, and F. F. Burchard, M.S., (Lond.), F.R.C.S. Surgeon to King's College Hospital, and Senior Surgeon to The Children's Hospital, Paddington Green, London. New (second) edition. Thoroughly revised and largely rewritten. In five octavo volumes, containing about 3,000 pages, with about 900 engravings. Price, cloth, \$6.00, net, per volume. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

First Book of Health, A Textbook of Personal Hygiene For Pupils in the Lower Grades, by Carl Hartman, B.A., M.A., Instructor in Zoology, University of Texas, and Lewis Bradley Bibb, B.A., M.D., Attending Physician, Austin Sanitarium. 121 illustrations. World Book Company, New York, 1913.

Stammering and Cognate Defects of Speech, by C. S. Bluemel. Vol. 1, The Psychology of Stammering. Vol. 2, Contemporaneous Systems of Treating Stammering: Their Possibilities and Limitations. Price, \$5.00 net. G. E. Stechert and Company, New York, London, Leipsig and Paris, 1913.

Radium as Employed in Treatment of Cancer, Angiomata, Keloids, Local Tuberculosis and Other Affections, by Louis Wickam, M.V.O., Médecin de St. Lazare; Ex-chef de Clinique a L'Hopital, St. Louis, and Paul De Grais, Ex-chef de Laboratoire a L'Hopital, St. Louis. Chefs de Service au Laboratoire Biologique du Radium; Laureats de L'Academie de Médecin. Translated by A. and A. G. Bateman, M. B., C.M. Price, \$1.25. Paul B. Hoeber, New York, 1913.

A Compend of Diseases of the Skin, by J. F. Schamberg, A.B., M.D., Professor of Diseases of the Skin, Philadelphia Polyclinic and College for Graduates in Medicine; Fellow of the College of Physi-

cians of Philadelphia; Member of the American Dermatological Association. Fifth Edition, revised and enlarged with 112 illustrations. Price, \$1.25. P. Blakiston's Sons and Company, Philadelphia, 1913.

Diet in Health and Disease. By Julius Friedenwald, M.D., Professor of Gastro-Enterology in the College of Physicians and Surgeons, Baltimore, and John Ruhrah, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Fourth edition, thoroughly revised and enlarged. Octavo of 857 pages. Philadelphia and London; W. B. Saunders Company, 1913. Cloth, \$4.00. Half morocco, \$5.50 net.

Materia Medica, Pharmacology, Therapeutics and Prescription Writing. For Students and Practitioners. By Walter A. Bastedo, Ph. G., M.D., Associate in Pharmacology and Therapeutics at Columbia University. Octavo of 602 pages, illustrated. Cloth, \$3.50 net. W. B. Saunders Company, Philadelphia and London, 1913.

Collected Papers by the Staff of St. Mary's Hospital (Mayo Clinic) for 1912. Octavo of 842 pages, 219 illustrations. Cloth, \$5.50 net. W. B. Saunders Company, Philadelphia and London, 1913.

A Clinical Manual of Mental Diseases. By Francis X. Dercum, M.D., Ph.D., Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia. Octavo of 425 pages. Cloth, \$3.00 net. W. B. Saunders Company, Philadelphia and London, 1913.

Blood-Pressure, From The Clinical Standpoint. By Francis Ashley Faught, M.D., of the Medico-Chirurgical College, Philadelphia. Octavo of 281 pages, illustrated. Price, \$3.00 net. W. B. Saunders Company, Philadelphia and London, 1913.

Physician's Visiting List For 1914. Sixty-third year of publication. Price, \$1.25. P. Blakiston's Sons and Company, Philadelphia.

Ancora altri otto casi di anastomosi intestinale con le *griffe* del *Michel* in resezioni intestinali—per gangrena da strozzamento in ernie—per invaginamento e prolasso acuto dell'intestino in fistola stercoracea—per lacerazione dell'intestino in ovariectomia pel Dott. Felice D'Alessandro, Chirurgo Coadiutore Ordin. negli Ospedali Riuniti e S. M. di Loreto. Estratto dalla "Gazzetta Internazionale di Medicina, Chirurgia, Igiene, Interessi Professionali, Organo Settimanale Napoli, 1913. N. 40.

Circular of School For Health Officers, Vol. 1, No. 1. Catalogue and Announcement. Published by the School For Health Officers, Boston, 1913.

Xophthalmic Goiter Cured By Ligating One Superior Thyroid Artery. By Leigh F. Watson, M.D., Oklahoma City. Reprinted from The Medical Record, September 27, 1913.

Abolishing Pain After Operations With Nerve Block A Distance. By Leigh Watson, M.D., Oklahoma City. Reprinted from Annals of Surgery, May, 1913.

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## MEDICAL NEWS

**Clinical Congress of Surgeons of North America.**—The opening meeting of the fourth annual session of the congress was held at Orchestra Hall, Chicago, Nov. 10, 1913 at 8:15 p. m. Dr. E. Wyllys Andrews, chairman of the committee of arrangements, called the meeting to order, welcomed the members and guests, and then introduced Sir Rickman Godlee, president of the Royal College of Surgeons of England, who said that he had been struck with the enormous amount of clinical material at all of the hospitals. He was impressed with the methodical way in which instruction is carried on, and with the methodical way in which subjects are handled in Chicago. Dr. Murray McLaren, Canada, president of the Canadian Medical Association, congratulated the officers and members of the congress on the remarkable success which had attended the organization from its very inception.

Professor Kronig, Freiburg, Germany, and Dr. C. J. Gauss, Freiburg, Germany also spoke, referring to the great work that is being accomplished by the congress, and thanked the American members on behalf of their German colleagues for the hospitality, courtesies and kindnesses shown them.

Dr. John B. Murphy expressed the opinion that it is a desire to disseminate and assimilate knowledge that made the organization and which has accentuated the fact that clinical teaching in the future is going to be the dominant part of American and every other type of medical education.

Dr. Charles A. L. Reed, Cincinnati, called attention to the work of the American Medical Association and the fact that in numbers it stands at the head of all medical organizations of the world; moreover, that the papers and proceedings of the Association are disseminated all through the profession through the avenue of *The Journal*

The presidential address by Dr. George Emerson Brewer, New York City, concerned "A Preliminary Report on a Simple and Rapid Method of Pyloric Closure in Gastro-Enterostomy."

Dr. Harvey Cushing, of Boston, reported 156 cases of operations on the gasserian ganglion with two fatalities, which occurred in the earlier cases.

The paper was discussed by Dr. John B. Murphy, Chicago.

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**The Red Cross Work in Ohio.**—The report of the American Red Cross of the relief work incident to the flood along the Ohio River last spring, shows that in the days immediately following the flood, more than 300,000 persons were dependent on relief supplies for food, and 64,161 families consisting of about 256,000 persons, were driven from home and were temporarily dependent for shelter on relief agencies. The flood destroyed 2,691 buildings, and the Red Cross repaired and put into habitable condition more than 10,000 buildings, where the total expenditure in cash by the Red Cross and the various state and local committee was not less than \$3,500,000.

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**Prevention of Infant Mortality.**—Baby specialists from every part of the country will take part in the fourth annual meeting of the American Association for Study and Prevention of Infant Mortality, which opens in Washington, November 14, and will continue in session until November 17. The program will include sessions on eugenics, prenatal care and instruction of mothers, problems of infant hygiene and infant feeding, standards of training for baby welfare nursing, continuation schools of home making and the relation of vital statistics to plans for social betterment. The opening session, which will be devoted to nursing and social work, will be under the chairmanship of Miss Harriet L. Leete, superintendent of nurses of the Babies' Dispensary and Hospital, Cleveland. The American Association for Study and Prevention of Infant Mortality was organized four years ago at a conference called by the American Academy of Medicine and held at Yale University. Through its members it is in touch with men and women in every community who are taking the lead in activities for social betterment. Over eighty societies, each of which is engaged in some phase of baby saving work, are identified with it as affiliated members. These societies represent organized baby saving work that is carried on in nearly fifty cities in twenty-seven states and in Canada. The chairman of the committee on local arrangements is Dr. Samuel S. Adams. Associated with him on this

committee are representative physicians, business men and leaders in the betterment activities of the district. Dr. H. L. E. Johnson is chairman of the press committee.

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**Award of Hodgkins Prize.**—On the recommendation of the Committee on the Award of the Hodgkins Prize of \$1,500 for the best treatise "On the Relation of Atmospheric Air to Tuberculosis," which was offered by the Smithsonian Institution in connection with the International Congress on Tuberculosis held in Washington in 1908, the institution announces that the prize has been equally divided between Dr. Guy Hinsdale of Hot Springs, Va., for his paper on "Tuberculosis in Relation to Atmospheric Air," and Dr. S. Adolphus Knopf of New York City, for his treatise "On the Relation of Atmospheric Air to Tuberculosis." The members of the Committee on Award were: Dr. William H. Welch, Johns Hopkins University, Baltimore, Maryland, chairman; Dr. Hermann M. Biggs, New York City; Prof. W. M. Davis, Cambridge, Mass; Dr. G. Dock, Washington University, Medical School, St. Louis, Mo.; Dr. Simon Flexner, Rockefeller Institute for Medical Research, New York City; Dr. John S. Fulton, Baltimore, Md., and Brig. Gen. George M. Sternberg, U. S. Army (retired), Washington, D. C.

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**Hospital News.**—To celebrate the completion of the Mercy Hospital, Tiffin, the management of the institution gave a banquet to the medical fraternity of Seneca County October 28.—At a meeting of the trustees of the Miami Valley Hospital, Dayton, the equipment was discussed and it was stated that the new building would be open January 1. Dr. Webster S. Smith was made chief of the regular staff. Drs. W. S. Smith, Carl H. Briedenbach and George P. Dale were appointed to the medical staff; Drs. F. Dale Barker, George Goodhue and William A. Ewing to the surgical staff; Drs. William E. Allaman, Arthur O. Peters and Alonzo H. Dunham to the obstetrical department; Drs. Henry D. Rinehart and Harry B. Harris to the department of the eye, ear, nose and throat; Dr. Ned D. Goodhue was appointed pathologist, and Dr. William H. Delscamp, roentgenologist.

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**Ohio Public Health Service.**—The state and municipal boards of health, together with the Anti-Tuberculosis League, will soon cooperate with the public health service in an investigation of tuberculosis in Cincinnati, which will include the relation of the disease to the various industries.

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**Radium for Use of Physicians.**—The first step in the plans of Alfred I. Dupont to use the output of the pitchblende mines for the use of the medical and scientific fraternity of the United States, was taken two weeks ago when he placed in the hands of Dr. Walter A. Jayne, Denver, a quantity of pitchblende ore with which to make experiments in the cure of disease. He also furnished Prof. L. F. Miller of the department of physics of the State School of Mines, Golden, some of the ore for scientific experimentation.

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**University of Cincinnati, Medical Department.**—Not a little importance is attached to the appointment of Dr. Frank B. Cross, Tuesday, November 4, as vice-dean and secretary of the medical department. Dr. Cross has acted as secretary of the Medical Civics Association since its origin, is a well-known ophthalmologist, and has done some very effectual organization work in medical circles in Cincinnati.

**Schmidt in Cincinnati.**—Dr. Adolph Schmidt, professor of internal medicine in the University of Halle, Germany, and editor of the *Zentralblatt für innere Medizin*, was the guest of the Cincinnati Academy of Medicine November 3, and delivered an address on internal diseases. Dr. Henry W. Bettermann gave a dinner and reception in his honor.

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**Personal.**—Dr. George A. Fackler, president-elect of the Ohio State Medical Society, has been reappointed a member of the Cincinnati Board of Health.—Dr. Frank B. Cross has been appointed assistant dean and secretary to the medical faculty of the Ohio-Miami Medical College.—Dr. Edwin W. Mitchell has been appointed professor of medicine in the Ohio-Miami Medical College, Medical Department of the University of Cincinnati, succeeding the late Dr. Frederick Forchheimer.

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**Physician Obtains Damages.**—The court of appeals on October 14 affirmed the decision of the common pleas court, which awarded Dr. Robert G. Noble, Columbus, \$5,000 damages for injuries sustained in a collision between his motor car and a street car in July, 1910.

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**Bond Issue Voted.**—The proposed bond issue for \$500,000 to equip the new Cincinnati General Hospital obtained the necessary two-thirds vote at the election November 4.

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**Forchheimer Memorial.**—October 30 a memorial was tendered the late Dr. Frederick Forchheimer, Cincinnati, by the College of Music. Dr. Forchheimer was a conspicuous figure in musical as well as medical circles.

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**South for the Winter.**—Dr. W. T. Barger and family will spend the winter in Orlando, Florida.

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**Army Medical Corps Examinations.**—The Surgeon General of the Army announces that preliminary examinations for appointment of First Lieutenants in the Army Medical Corps will be held on January 19, 1914, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the travelling expenses of applicants as much as possible.

In order to perfect all necessary arrangements for the examinations, applications must be completed and in the possession of the Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present twenty-six vacancies in the Medical Corps of the Army.

## DEATHS

**Henry A. Smith, D.D.S.**, Ohio College of Dental Surgery, 1857; a Fellow of the American Medical Association; died at his home in Cincinnati, September 10, aged 80.

**Henry Hilton Havens**, Ohio Medical College of Cincinnati, 1888; died at his home in Tippecanoe City, September 27, of erysipelas, aged 55.

**R. DeWitt Robinson**, of Akron, died at Grace Hospital in Cleveland, October 7, following operation for appendicitis, aged 44.

**Alexander James Erwin**, University of Nashville, 1859; died at his home in Mansfield, October 9, aged 76.

**Philip D. Reefy**, Cleveland Medical College, 1871; veteran of the Civil War, active in the G. A. R. and Ex-mayor of Elyria, died of septic poisoning on October 7, at his home in Elyria.

**Herman C. Theiss**, Columbus Medical College, 1886; died at the Akron City Hospital, after an automobile accident in which he sustained a fractured skull. Doctor Theiss has been a practicing physician in Akron for many years and has been active in behalf of both local and American medical associations, being at the time of his death, October 12, 49 years of age.

**W. W. Hill**, Toledo Medical College, 1883; died at his home in Weston, October 17, of arteriosclerosis, aged 68.

**August Schumacher**, Ohio Medical College of Cincinnati, 1896; of Hamilton, former Health Officer and for four years Coroner of Butler County, died October 19 of heart disease, aged 39.

**Samuel M. Mosgrove**, Miami Medical College, Bellevue Hospital Medical College, 1873; a prominent physician and lodge member of Urbana, died at the age of 62. Doctor Mosgrove held many prominent public positions and with his death Urbana is without a physician by the name of Mosgrove for the first time in 100 years.

**O. G. Comstock**, for twenty-five years practitioner in Toledo, died at his home very suddenly, of acute heart disease, October 28, aged 58.

# The Cleveland Medical Journal

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VOL. XII

DECEMBER

NO. 12

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## SURGERY OF THE SEMINAL VESICLES

By J. BENTLEY SQUIER, M. D., Professor of Genito-Urinary Surgery,  
New York Post-Graduate Medical School

The seminal vesicles have long occupied a neglected chapter in the history of surgical investigation, and it is the more surprising that such is the case when one considers the enthusiasm which marks the writings of the pioneers in this branch of surgery. With the notable exception of a few American surgeons, none have sufficiently interested themselves in the subject to record the results of their experience. Two factors seem responsible for this apparent lack of interest:

One, the anatomical situation of the vesiculæ seminales, making their exposure difficult and the early methods of approach offered, giving the impression of being either very formidable or very unsatisfactory operations.

Second, that the pathology of the organs had not been sufficiently understood to appreciate their significance as harborers of chronic focal infection and their relation as causative factors in many chronic systemic toxemias.

Experimental work upon the etiology of the chronic arthritides has served to support the established idea that most of the chronic forms of arthritis are essentially metastatic in origin. Fuller, in a series of papers, has drawn attention to the close casual relationship between chronic seminal vesicular infection and the chronic forms of neisserian arthritis, and by his original operation of seminal vesiculotomy with vesicular drainage has reported a considerable number of cures.

Furthermore, the recent contribution of Billings on "Chronic Focal Infections and their Etiologic Relations to Arthritis (and Nephritis)" has definitely established the intimate relationship between localized suppurative processes and metastatic arthritis.

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\*Read before The Cleveland Academy of Medicine, Nov. 7, 1913.

Among the variety of focal points productive of joint manifestations are the seminal vesicles.

Billings has scientifically proved that, "there can be no question that chronic gonorrhoeal infection of the seminal vesicles may cause systemic disease—especially arthritis," and streptococcus infection of the seminal vesicles may also cause systemic infection and arthritis deformans."

When an infection has become thoroughly established in the deep urethra there is almost always a coincidental infection of the seminal vesicles through direct continuity of tissue. The vesicles being nidi of infection, there is an intra-seminal vesicular infection which may be acute, subacute, latent or sclerosing, associated with a varying degree of peri-vesiculitis and extension into the contiguous vesical tissue with the development of a trigonitis or cystitis. The chronicity of vesicular infection; the almost absolute inability for the institution of intra-urethral or natural drainage, would presuppose that an infection once implanted upon the vesicles is seldom completely or permanently cured by natural processes.

We have submitted fluid withdrawn from the vesicles to repeated cultural and bacteriological tests and from our negative findings in regard to bacteria, feel inclined to believe that the exciting cause is in the nature of a mixed infection. This would explain why we have so many chronic arthritides popularly designated "rheumatoid joints" which are not specifically neisserian but are the late result of an antecedent gonorrhoeal infection with an engrafted pyogenic element. From the focal point of infection in the vesicle we have the periodic absorption of infective material, either neisserian or streptococcus, staphylococcus or both, with the subsequent development of single or multiple arthritis either in the form of a chronic osteoarthritis of hypertrophic or atropic type.

A pertinent factor at once presents itself. If systemic manifestations and joint involvements are produced by secondary infection from streptococcus or staphylococcus or colon bacillus at a period when it is impossible to demonstrate the presence of the gonococcus either by culture or by complement deviation test, how can we prove that the vesicles are the focal infective areas. While we are convinced of the value of vesicular drainage as a therapeutic measure for the cure or amelioration of some of the arthritides, many doubtful questions must be cleared up, some from operative experience and many in the laboratory.



It remains therefore for surgeons to record the results of their surgical work upon these organs so that when taken in conjunction with our increasing laboratory knowledge, definite deductions may be made, concerning the advisability and choice of operative procedure in the individual case.

If the seminal vesicles were merely hollow visci, similar in contour to the gall bladder, the question of surgical drainage in the event of chronic inflammation would be a comparatively simple proposition. If such were the case their outlets, the ejaculatory ducts, becoming partially or fully occluded by inflammation, an incision into the vas or vesicle should, theoretically at least, provide adequate drainage; however, such a condition does not obtain.

Picker of Budapest, exhibited at the German Urological Society in 1911, a series of dissections of seminal vesicles. Of seventy-two specimens, fifty-six normal and sixteen pathological, the following classification was deduced:

(a) Simple straight tubes.....	4%
(b) Thick twisted tubes with or without diverticulæ .....	15%
(c) Thin twisted tubes with or without diverticulæ .....	15%
(d) Main tube straight or twisted with large globe-like arranged diverticulæ.....	33%
(e) Short main tube with large irregular ramified branches .....	33%
	100%

#### 1. *F. Various*

Embryological abnormalities.

Congenital duplications of vesiculæ seminales.

Rudimentary seminal vesicles.

Ductus mulleri persistens.

Vesicula seminalis covering ampulla.

Ductus ejaculatorii in post wall of the prostate.

(These all belong to otherwise anatomically normal specimens).

#### 2. *Pathological Conditions.*

Inflammatory cicatricial adhesions not to be disentangled, cicatricial occlusions of both vasa, etc., carcinoma, vesiculæ seminalis.

Radiographic examination of collargol injected vasa and vesicula add further testimony to the irregular contour of the organs. A study of these data, forces the conclusions that to effectually drain such an organ, incision into the diverticula may become as important as incision into vas or vesicle.

The clinical course of an acute inflammation of the vesicles might easily be foreshadowed if the anatomical arrangement of the tube system were known.

The simple straight tubes with but few diverticula tending to early resolution and spontaneous cure, and the more complicated arrangements with diverticula and congenital abnormalities to cronicity and systemic infection. The simple straight systems form only one-third of the cases usually met with, therefore, cronicity of infection is to be expected. For these and other reasons massage of the vesicles has proven of but little curative value in many cases.

The operation of drainage of the vesicle by incision into the scrotal vas deferens would seem to be of advantage in selected cases only and explains why some of us have failed to obtain relief for our patients by the Belfield operation.

Theoretically, the vesicles may be surgically exposed through abdominal incision either intra or extraperitoneally. In the first instance by the division of the recto vesical fold of peritoneum, and in the other by dissection of peritoneum away from the bladder—the vas deferens being the guide to the vesicle. Davis states that the vesicles lie higher and beyond the prostate, so that it is impossible to bring them well into view by perineal exposure. This is in the main true for the incomplete exposure in the original Dittel operation. (Dittel, 1894).

Practically, however, the perineal exposure fulfills every requirement and carries with it none of the dangers of the before mentioned.

Through the perineum two methods are possible: First, that the Fuller in which two converging longitudinal cuts are made over either ischio rectal fossa and connected anteriorly in front of the anus, the patient being in knee-chest position. With the finger in the rectum a deep blind dissection between the rectum and the prostate is made by cutting through the levator ani muscle and the vesical layer of pelvic fascia. Further blunt dissection opens on the vesicle, which is then incised by sense of touch. At the hands of its distinguished originator it is a finished exhibition of surgical skill.

A second perineal method of exposure, which allows the vesicles to be brought into direct view, recommends itself for a variety of reasons—some of which are as follows: If we are to arrive at a sound basis for the indications of surgical attack upon the vesicles a number of points concerning the pathology of these organs must be further studied, important of which are a knowledge of the microscopical appearance of diseased vesicular conditions as well as microscopical evidence concerning their contents. Such data necessarily can only be obtained by an exposure which allows the organs to be brought into view.

The lessened dangers of injury to the rectum or bladder which accompanies the second method are added arguments in its favor, secondary, however, since their avoidance would be but a question of surgical skill on the part of the individual operator.



Plate 1. Skin incision.



Plate 2. Median tendon of perineum exposed and fossae on either side.

And finally, if drainage of the vesicle is to be complete, incisions must be made into ampulla and body of vesicle with multiple puncture of existing diverticulæ and this can only be effectually performed under the guidance of the eye.

The technique about to be outlined embraces a new feature in the rotation of the base of the bladder through an arc of about sixty degrees, by means of traction sutures.

*Operation*—Patient in extreme lithotomy position.

*Incision*—Inverted Y. (Plate 1). Dividing integument and exposing median tendon of the perineum. (Plate 2).

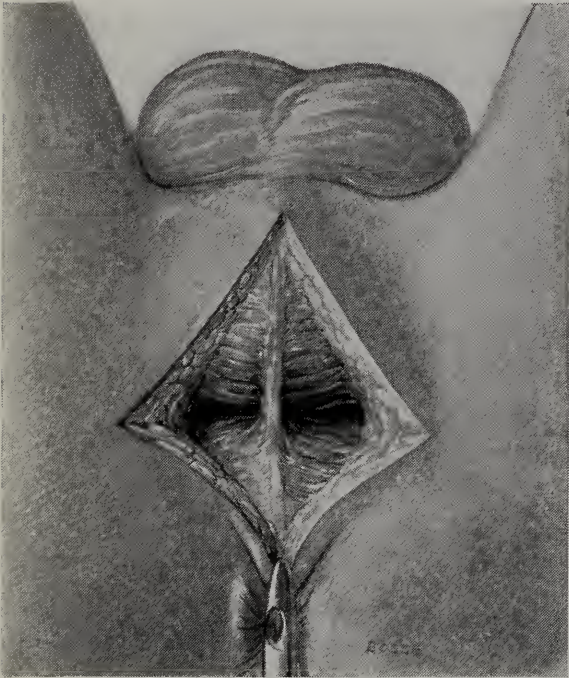


Plate 3. Recto urethralis muscle exposed after division of median tendon.

Plate 4. Prostate and bladder base exposed and traction sutures in position.

Tendon divided.

Fossæ on either side opened by blunt dissection down to prostate.

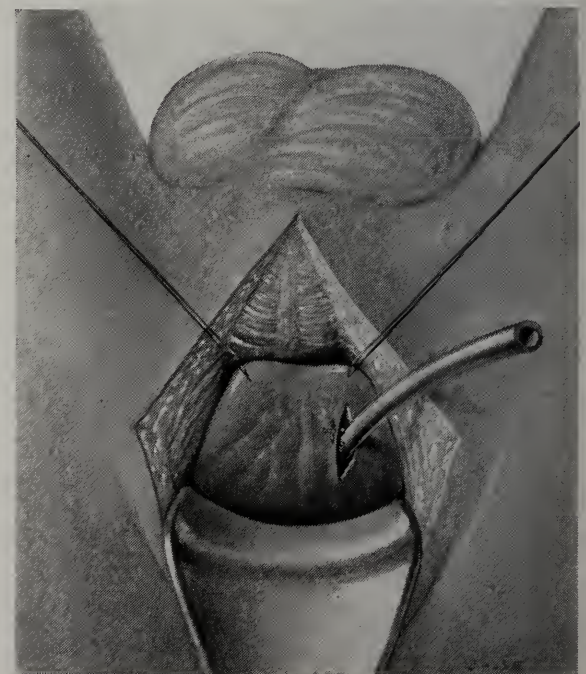
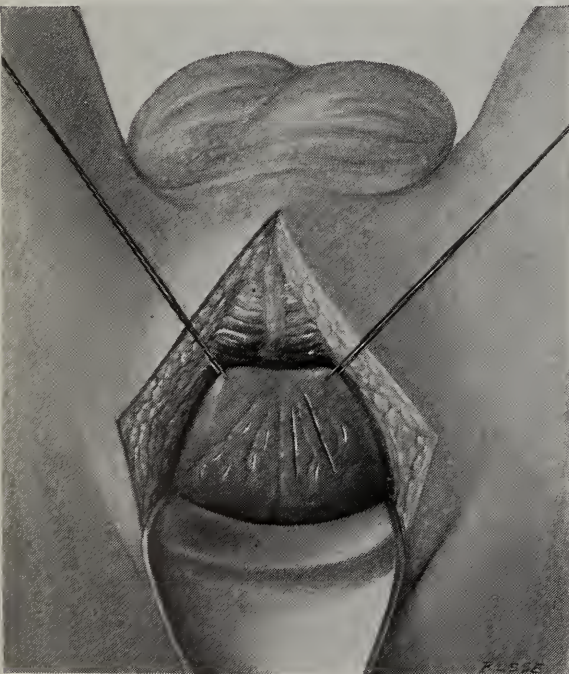


Plate 5. Vesicles covered by Desnonvillier fascia exposed by traction on sutures. Multiple puncture of Vesicles.

Plate 6. Drainage tube held in place by stitching to fascia.

Division of urethro-rectalis muscle. (Plate 3).

Exposure of prostate.

Two stout silk sutures are now introduced through prostate and bladder wall at junction of prostate and bladder base. They are placed as far laterally as possible. (Plate 4.) Traction of these sutures downward and forward rotates prostate and bladder base upward and forward thus exposing the fascia covering the vesicles. (Fascia of Desnovilier) (Plate 5).

The fascia of Desonvillier is divided and the vesicles present.

Incision and drainage with multiple puncture of diverticula or excision of the vesicles is then readily accomplished. (Plate 6.) In excising the vesicles a ligature need only be placed at the Superior exterior pole at which point the blood vessels enter, the remainder of the vesicle is enucleable. Excision is made possible by cutting through the vesicle proximal to this ligature. (Plate 7.)



Plate 7. Excision of vesicle—Clamp on upper and outer pole—Only point of blood supply. Fascia of Desnonvillier has been dissected away.

*Indications—Conclusions—Results.*

To outline my views on the indications for drainage of the seminal vesicles, I will formulate a very general classification.

It might be summed up in three words: Pus, pain and rheumatism.

*Pus*

- (a) Under this heading are placed those acute cases developing in the course of a gonorrhoea often mistaken for prostatic abscess, in which the perivesiculitis present simulates prostatic enlargement to the rectal touch.
- (b) Cases of recurrent epididymitis following acute urethritis and vesiculitis.
- (c) Certain cases of chronic vesiculitis which simulate spermatorrhea, namely those in whom discharge from urethra occurs during defecation and which have resisted faithfully carried out non operative treatment.

*Pain*

Under this heading are placed those patients suffering from chronic vesiculitis complaining of persistent perineal ache, who go from bad to worse irrespective of treatment and eventually develop severe neurasthenia. Of course, presupposing that other possible causes for the condition has been eliminated.

*Rheumatic*

This group includes those patients in whom a definite relationship may be established between an antecedent gonorrhoea with vesicular invasion and the joint lesion. Such a relationship is readily established in those articular inflammations occurring during the acute period of a gonorrhoea, but becomes increasingly difficult to prove as the interval of time between the acute specific urethritis and the appearance of the joint lesion lengthens.

The group may be divided in 1, acute; 2, sub-acute; 3, chronic and 4, deforming types. The case histories to follow represent illustrations of the first three subdivisions.

**CASE A-C—SYNOPSIS****30 Years of Age**

April 3, 1913.—

Infection in December. Acute specific urethritis.

Virulent in character from the first. Post urethritis.

Double epididymitis. Sent to hospital twice—January and February—for threatened prostatic (?) abscess.

Both times relieved by local measures. During March—

Symptoms: Profuse urethral discharge—dysuria and frequent urination.

Treatment: Urethral injections and irrigations.—Antigonococcic serum and vaccine treatment.

March. Before coming under my care, multiple arthritis had developed.

Knees, ankles, wrists, vertebrae and maxillary articulation involved.

He was carried to the hospital on a stretcher on April 3 1913.

P. E. Thin urethral discharge: gonoc.

**Per Rectum**

Prostate swollen and tender.

Vesicles palpable and exquisitely tender.

Patient was running a septic temperature.

Refused operation and steadily became worse in spite of local and antirheumatic treatment.

Daily excursion of temperature to 101. Pulse 92-104.

Blood culture neg.

On April 19th, consented to operation, chiefly because his jaws had become so rigid that it was with difficulty that even fluids could be introduced into the mouth.

**Operation:** Squier Technique.

Vesicles distended with thin whitish fluid

Multiple incisions into vas and vesicles.

Culture of fluid from vesicles, negative.

**Post Operative** note from hospital record:

"Twelve hours after operation jaws had relaxed arm and knees free from pain. Ten hours later the swelling had disappeared from feet and ankles. Three days after operation the patient was free from pain except in region of wound".

The patient made a tedious but uneventful convalescence.

A sharp rise of temperature occurred on the sixteenth day after operation due to drainage becoming blocked.

He left the hospital cured on June 5th, and has remained so.

**CASE G. B. 42-M****Synopsis**

Acute specific urethritis of 3 months' duration.

Treatment—Internal medication for one week, then injections for three weeks. Discharge ceased.

At the end of sixth week, the right knee joint became acutely inflamed with swelling and exquisite tenderness.

Confined to bed. Knee immobilized and serum and vaccine injections given. Acuteness of symptoms subsided but the knee remained swollen and painful, with impaired motion.

Dec. 17, '12—On admission to the hospital he could not bear weight on the leg. The knee measured four inches more in circumference than its fellow and fluctuation in the joint was present.

Evidence of urethritis and seminal vesiculitis existed.

**Operation,** Dec. 18, 1912.

Drainage of vesicles. Squier technique.

Post operative record—

All pain disappeared within the first day. Swelling slowly subsided.

Discharged on January 4, 1913, absolutely cured and has remained so.

**Sub-Acute Type.**

**Synopsis—M. S.—24. s. June 14th, 1913**

**Chief complaint:** Stiffness and swelling of left knee and right elbow joint.

*Family history* negative.

*Personal history:* Medical measles during childhood.

*Surgical—*

Operation for adenoids and tonsil extirpation some years previously

*Veneral.*

Acute specific urethritis 6 months ago.

Persistent discharge. Vague pains in various joints, rheumatic in character developed two months ago and right elbow became swollen and tender. Two weeks ago, sharp pain, redness, swelling and limited motion developed in left knee.

*Treatment—*Injections and irrigations.

*Operation*—Drainage of vesicles by multiple incision.

Squier technique.

Vesicles were distended with fluid, having appearance of skim milk  
Considerable perivesiculitis present.

Post op.—Pain disappeared in joints the day following operation.

Discharged cured on July 2nd.

Has remained so.

### Chronic Type.

**Synopsis—H.—40. s. (Type setter) Oct. 19, 1912**

Chief complaint—

Pain and swelling in left heel and ankle. Unable to walk without  
cane.

Family history: Negative. No evidence of lead poisoning.

Personal history: Medical. Negative. Chronic alcoholic.

Surgical operation 7 years ago. Inguinal adenitis.

Venereal—Claims to have lues three times.

20, 15 and 12 years ago.

In July, 1912, left heel and ankle began to pain him—worse at night, swelling and tenderness followed. He entered a hospital and was confined there three months, during which period his chronic urethritis was treated by local measures, serum and vaccines. His ankle was baked and a steel arch support worn. The joint condition did not improve even with antirheumatic treatment.

*Examination:* Chronic seminal vesiculitis. Wasserman—Negative.

The patient was told that drainage of the vesicles might give relief and he accepted operation. This was performed on October 20th, 1912. Pain in ankle disappeared within 24 hours after operation and by the time he was allowed up (10 days) the affected joint had become normal in size. After leaving the hospital, he obtained a position as type setter, which required being on his feet continually for hours. From the day of leaving the hospital, Nov. 6th, 1912, to the present he has been regularly at work without pain or discomfort in the joint. He has gained in weight and claims to be well.

Of the last or deforming type, Arthritis Deformans, so much remains to be worked out that I am unable to offer any conclusions.

While it seems incredible that simple drainage of a focal infection may cause resolution in a joint organically crippled by ankylosis and bony changes, certain observers have claimed wonderful results, yet one should be open-minded and delay final judgment until more data is obtainable.

It has not been an infrequent experience to find patients, suffering from what we have believed to be sclerotic changes in the spinal cord and brain due to syphilis, show marked improvement by the use of salvarsan. Of course, the explanation is obvious, namely an acute or sub-acute exudative inflammation co-existent with the sclerosing change has been benefited by the treatment, thus producing amelioration in the symptoms.

A like explanation might apply to the reported cases of improvement in patients suffering from Arthritis Deformans who



have been subjected to drainage of the vesicles. I have had no personal experience in operating upon cases of this type but shall follow with interest the reports of others.

My work has been limited to those patients in whom there seemed very definite indications for operation. Of those operated, over one-half have suffered from so-called gonorrhoeal rheumatism. In the majority of these, local measures have been tried out, both for the joints and the gonorrhoea, including vaccine treatment before operation was resorted to. Operation has resulted in rapid cure in every acute or sub-acute case.

The remainder have been those coming under the "Pus" and "Pain" groups. A number of interesting conditions have been discovered.

In one patient who had suffered for years from perineal pain and intermittent urethral discharge, the vesicles were found to contain a number of small phosphatic calculi.

Another had suffered from persistent neuralgia of the testicle and perineal ache for an indefinite period. The testicle had been removed with no abatement of pain, still referred to the absent testicle. A chronic urethritis and vesiculitis had been locally treated for years with no improvement. Drainage of the vesicles resulted in a cure of these and also complete relief of the pain referred to the testicle.

The group of those presenting the symptoms of discharge from urethra during defecation and in whom symptoms had long persisted in spite of local treatment have responded well to operation. One is cured after an interval of a year and a half, two at the end of a year, and four at periods of from six to eight months. Two have received no benefit.

Four cases of chronic seminal vesiculitis with associated attacks of recurrent epididymitis occurring without possible fresh infection, the exciting cause of the recurrence being in each instance overexertion, by exercise, walking, horseback, tennis, etc., have remained free from these recurring attacks for periods of sixteen months, ten months, nine months and six months respectively. Three cases in whom operation was resorted to, during the acute invasion of the vesicles by gonococcal infection, were probably saved the long after treatment necessary to even approximate a cure by non-operative methods, as well as possible local and systemic complications.

Four weeks after operation they were free from clinical signs of the disease and have remained so.

They were of the type that ordinarily would be treated by rest in bed, hot rectal irrigations, etc., and in whom the acuteness of the symptoms so frequently subside only to leave a sub-acute tedious stage to deal with and often a lasting chronic infection.

Three cases of chronic vesicular inflammation with co-existent suppurative perivesiculitis have been submitted to operation. One of whom referred all his symptoms to the right kidney—namely, pain over kidney region and colic produced by pressure of the abscess on the lower end of the right ureter.

One case of suppurative seminal vesiculitis with peri-vesicular abscess formation followed unclean catheterization during an attack of typhoid fever. Principally of interest since the prostate was not involved in the abscess formation.

The treatment of perivesicular pus formation is so obviously surgical that but little mention is made of it.

If the anatomical relation of the vesicle and lower end of the ureter be kept in mind many of the indefinite pains referred to the kidney occurring in those suffering from acute or chronic vesiculitis may be readily explained, as well as the fact that extensive destruction of kidney may follow a ureteral stenosis, due to inflammation originating in the vesicle. An added argument for surgical recognition of seminal vesiculitis.

I have outlined some of the indications for operative intervention in disease of the seminal vesicles, and have purposely omitted a detailed report of all my cases, wishing to reserve this for another communication.

When I undertook to acquire an experience with this operation I must confess that it was with considerable misgiving. The reported results seemed too good to be true, nevertheless, I decided to work out my own conclusions and these I beg to submit in closing this paper as follows:

Drainage of the seminal vesicles is entitled to the thoughtful consideration of progressive surgeons, and while I do not believe that it is a "cure all" to which patients should be lightly subjected, I do believe that in properly selected cases, the operation will offer more and more, in exact proportion to the wisdom exercised in selecting them.

## AN EFFICIENCY TEST OF DISPENSARY TREATMENT OF 100 CASES OF GONORRHEA

By HENRY L. SANFORD, M. D., Cleveland.

This paper is a report of the results of treatment of 100 consecutive cases of gonorrhœa admitted to the Lakeside Hospital Dispensary between July, 1912, and January, 1913, and is an attempt to make an unprejudiced inquiry as to whether or not, the clinic is doing as efficient work as should be expected in that line of cases.

As far as we know, Davis (1) in his article on the Boston Dispensary was the first to analyze dispensary work from the standpoint of efficiency. We agree with him that it is just as useful for the medical man to study his results as it is for the manufacturer to find out whether he is getting a proper return on his investment—and it sometimes has a surprising effect in reducing one's self-satisfaction. We have included in this series only cases of acute and chronic urethritis in which intracellular Gram-negative diplococci were present in the urethral discharge, thus excluding all other forms of urethritis.

We base this study of efficiency on three points:

1. The type of patients treated as shown by
  - A. occupation
  - B. working or idle.
  - C. age and social condition.
2. Their attendance at the clinic.
3. Results secured.

### 1. *Type of patients—*

#### A. *Occupation*

An idea of the sort of patients treated in the dispensary may be gained from their occupations. In the 100 cases there was about an equal division between skilled and unskilled labor.

(1) Davis, Michael M., *Efficiency of Out-patient Work*. J. A. M. A., lix, 1689.

Skilled labor—	48%
Machinists .....	11
Waiters .....	6
Tailors .....	3
Molders .....	3
Carpenters .....	3

Painters .....	2	
Printers .....	2	
R. R. Clerks .....	2	
Paper Hangers .....	2	
Miscellaneous .....	14	
Unskilled labor—		52%
Laborers .....	38	
Truck drivers .....	8	
Hucksters .....	4	
Longshoremen .....	2	

### B. *Working or idle*

Of these men 69% were idle and 31% working. Not all the idleness was due to lack of work, as it was the busy season of the year. Many were in enforced idleness owing to complications of their disease. Gonorrhoeal epididymitis and arthritis in their acute stages are affections which absolutely cripple the patient for work. The social and economic importance of the disease becomes especially insistent when the bread winner of the family is the patient. Unfortunately when these men most need our help and are sick enough to be in bed, we can do nothing for them as the wards of Lakeside Hospital are not open to cases in the florid stage, and we must refer them to the City Hospital where crowded conditions generally prevent their admission.

### C. *Age and social condition*

In this series 80% of the men were between 18 and 25 years old. The oldest patient was 56, and the youngest, 17; 78% were single and 22%, married.

#### 2. *Attendance*

The regularity with which patients return to a clinic for treatment depends among other factors upon the responsibility a patient feels about a cure, and the treatment he gets or thinks he gets. We have little to complain of in the general attitude of our patients; there are a few tramps or hoboes who get off a freight train for a few days dispensary treatment, and then go on their way; there are also some foreigners for whose language no interpreter is available, and to whom it is hard to give directions.

The treatment the patient gets depends entirely on the personnel of the staff, not alone from the medical viewpoint, but in our opinion, to no small extent on the exhibition of some human interest in the patient by the physician. We have often felt that

patients continued to take what seemed to them useless treatment on account of some interest we had shown in conditions of their lives other than that of disease. We shall refer later to the great opportunity to do social service work with this class of patients.

Our clinic is a teaching clinic, and during nine months of the year there are constantly with us sections of the fourth year medical class doing practical work. We find this works against regular attendance by the patients, who tell us they do not wish to be handled by students, which they know them to be, in spite of our calling them assistants. The desire to keep a full clinic, and on the other hand the necessity of giving the students practical experience, are two factors hard to reconcile. We have had many patients leave us after being treated by student assistants. Patients are generally told to report to the clinic every four to seven days.

With these factors affecting attendance in mind, it is somewhat startling to find that

56%	of the patients	made from	1 to	5 visits			
25%	" "	" "	" "	" "	5	" 10	"
13%	" "	" "	" "	" "	10	" 15	"
6%	" "	" "	" "	" "	15	" 30	"

In other words, in more than half of the series we probably did the patients little, if any, real good, because no one will believe that a gonorrhoea can be properly cured in five visits. Many of the cases making but one visit, however, were those with such acute conditions that they were not suited for ambulatory treatment, and were referred elsewhere at once. The 25 per cent which made five to ten visits were probably considerably relieved of their acute symptoms at least, and a later analysis shows that this group includes some cures. The greater number of cures naturally comes in the last two groups making from ten to thirty visits.

### 3. *Results*

In tabulating results we have not attempted to make distinctions between grades of improvement in a patient's condition, such as "improved," "much improved," etc., because as we see it, a patient is either cured or else he is not cured. A person with a small remaining focus of gonorrhoea, no matter how much "improved" he may be, is a potential danger to himself and to others.

It will first be necessary to state definitely our position as to what conditions we require in a patient before calling him "cured." While the combination of (1) a clear urine without shreds, or with shreds repeatedly negative to stain and culture, (2) a complete disappearance of all subjective symptoms over a period of some weeks, in the face of alcoholic and sexual indulgence, and (3) a negative complement fixation test of the blood, might be regarded as ideal requirements for a cure, we have insisted only on the last requirement, viz.: a negative fixation test, done by a competent laboratory man, on the blood of a patient which previously had been found positive, or in whose urethral discharge gonococci had previously been demonstrated.

We have not hesitated to pronounce patients with a "morning drop" cured if their blood was negative, because we believe that chronic cases are often left with anon-specific catarrh after the gonorrhoea is cured, and in none of these cases with negative blood reactions has a recurrence of the gonorrhoea taken place, except in one instance where there was a very definite history of re-infection from outside sources. Of course the blood reaction is never taken on these cases with a "morning drop" until repeated examinations of the discharge have failed to show any gonococci. Our belief on this point has been so strong that during the last year and a half in our private practice, we have repeatedly advised our patients to marry in cases where a "morning drop" was present, but in which the blood had repeatedly been found negative. Thus far we have had no reason to regret our action. Healthy children have been born as a result of the marriages, and no symptoms have been reported on the part of husband or wife.

With this definition of a cure in mind, we have discharged 16 cases out of 100 as "cured." Of this 16, we feel we should take no credit for four, as they all made five visits or under to the clinic; they reported with chronic catarrhal symptoms, gonococci were never positively found in their discharge, and as their blood reactions were negative, we discharged them as "cured," although they were not cured by us. We at least gave them the satisfaction of knowing that they had no further specific infection. The details of the twelve cures are here tabulated.

DETAILS OF CURED CASES

Dispensary No.	No. Visits	Acute or Chronic	Gonococci	Length Treatment	Blood	Condition when Urine	Discharge
114177	19	acute	positive	3 mos	positive then neg.	clear, few shreds	none
114762	10	"	"	3 "	negative	clear	"
115067	8	"	"	2 "	"	"	"
115382	15	"	"	3 "	"	"	"
115534	13	chronic	"	3 "	"	few shreds	slight discharge
115780	13	"	"	3 "	"	"	none
115890	10	"	"	3 "	"	"	"
116017	11	"	"	3 "	"	"	"
117067	8	"	"	2 "	"	"	"
117352	10	acute	"	3 "	"	"	"
117458	33	chronic	"	7 "	pos. then twice neg.	"	slight discharge
117538	12	"	"	4 "	negative	"	none

This leaves us with the fact that out of 100 cases, we were able to see through to a cure only twelve. It also means that over 80% of the patients are probably still going about uncured with the possibility of spreading the infection further. Whether twelve cures out of 100 cases are a creditable number or not, with the drawbacks of this class of patients, the difficulty of their leaving work to attend the clinic, and the fact that students in training assist in the clinic, I will leave to the judgment of others who have worked under these conditions. But creditable under the circumstances or not, it is useless to pretend that such results are satisfactory. However, we absolutely refuse to be responsible for failure of cures in all of the 88 per cent of this series that left our clinic uncured. It was impossible to secure proper hospital care for at least 20 per cent of these men.

The situation with regard to gonorrhoea in Cleveland, at present, is this: none of the hospitals which treat gonorrhoea in their dispensaries will admit this class of patients to their open wards, when these men are sick enough to be in bed with such disabling complications as gonorrhoeal epididymitis and gonorrhoeal rheumatism. The result is that the only place these patients can be sent is to the City Hospital, and on account of the inadequate space assigned them there, nine times out of ten, there is no room for them. This means that extremely sick patients are turned out into the streets of Cleveland every day.

It is undoubtedly the right of any private hospital to dictate the channels in which its charity shall be directed, and if its trustees chose to exclude gonorrhoea from their open wards, we can only feel that they are neglecting a great opportunity for constructive charity. It is furthermore true that upon the city falls the duty of caring for contagious diseases which develop within its limits, and in this category gonorrhoea would be included. Wholly aside, however, from all question of duty, sentiment, or charity, we maintain that the standpoint of social economy is the strongest argument that can be made for the proper hospital housing of these patients by the city.

In order to improve the present conditions in Cleveland, our first recommendation is this; *that it would be an economic saving to the city of Cleveland to provide an adequate number of ward beds in its municipal hospital for cases of venereal disease with acute disabling complications.* Separate wards should be set aside for these patients, although, if this were not practicable other



patients in the same ward would be exposed to no danger of contagion from such cases if simple precautions were used.

Gonorrheal rheumatism and gonorrheal epididymitis under ambulatory treatment produce a total disability which varies from a few weeks to several months according to the living conditions of the patient. Meanwhile these patients lose their jobs, and spend what money they have saved. Unless they have a good deal of moral stamina, they are apt to become discouraged and lose their grip on life, and meanwhile they and their families fall into the hands of the Associated Charities or seek city relief.

Hospital treatment for these cases more than cuts this disability in half, and saves time, money and suffering for the patients and their families, and incidentally for the city. If the patient is single, he is often turned out of his boarding-house when his condition is discovered, and when he most needs help, he gets none. If proper provision were made to give such men hospital care until they could get on their feet, they would preserve their self-respect and return to work as useful members of society, instead of becoming vagabonds as often happens at present.

Many of these cases must be in bed to be properly treated. Limping on crutches and canes from the home to the dispensary is not good treatment for gonorrheal rheumatism. It wastes the time of the patient and doctor, and it wastes the city's money because, if the patient is married, it will cost the city more to take care of the man's family which it may eventually have on its hands, than it would to give the man a bed in a municipal hospital, cure him, and put him back to work.

It seems to be very difficult, however, to arouse any enthusiasm about the subject or subjects of gonorrhea. Pregnant women and suffering babies are surrounded with a glamour of sentiment which loosens the purse strings of the charitable, but the man with gonorrhea is too often treated with a serves-him-right spirit by those who may have been equally guilty, but more fortunate. If city officials will only come to see that this is a pure matter of dollars and cents and not charity to put these patients on their feet and back at work, a great gain will be made in present conditions.

2. *Dispensary authorities should assign male social workers to the genito-urinary clinic.* The dispensary physician should not be expected to look out for matters of food, clothing, employment and support of families of his patients. He has all he can

do to give proper medical treatment without going out of his sphere to do poorly work for which he has not been trained. We have often spent as much as an hour trying to find a place to sleep for some poor chap who was desperately sick, who had been turned out of his boarding-house, and who had neither money nor food, and we have often ended by turning him out into the street. Using dispensary time in this way means the neglect of other patients, in trying to care for the most insistent need.

It has not seemed practicable to use female social workers for these patients at Lakeside Hospital, and lack of funds has thus far prevented the assignment of male workers to our department. The social worker assigned to the clinic should be at the dispensary each day during clinic hours, and co-operate with the physician in caring for the material side of the case. Many lines of endeavor suggest themselves for the social worker to follow. He may intercede with the patient's employer and prevent him from losing his job if frequent visits to the clinic conflict with working hours; he may prevent the breaking up of families in the case of married patients. All this work isn't condoning the lack of morals on the part of the patient, and it isn't charity—it is simply hard common sense in restoring to society as soon as possible a temporarily incapacitated earning unit.

3. *The dispensary physician can very largely influence the results obtained in the clinic by the human interest he takes in his patients.* It has often struck us that the apparently most irresponsible patient will respond to an appeal made from that side when nothing else will reach him. We are free to confess that we often fail in this regard. It is hard in the busy routine of the clinic always to bear this in mind, but we are convinced that it will accomplish results.

It is not within the scope of this paper to discuss our methods of treatment, but we wish to mention one matter, and that is that before discharging patients, we try to teach them prophylaxis against subsequent infection. We once asked an Episcopal clergyman, who visited our dispensary whether it would be better to say to a patient before discharging him, "Go, and sin no more," or to teach him how to keep out of trouble in case he did a little back-sliding. The rector thought for a minute and then said, "Doctor, you have your problems, and I have mine. I don't know the answer to yours." So we continue to teach prophylaxis.

*Conclusions.*

(1) Dispensary treatment of gonorrhoea is at present curing only 12% of the cases which come to Lakeside Hospital.

(2) A large portion of the 88% of uncured cases are too sick for dispensary treatment. All private hospitals refuse them admission to their open wards. At present the City Hospital hasn't space for them.

(3) It would be an economic saving to the city to give these seriously sick cases proper hospital care, and the City Hospital needs 75 to 100 beds to do it.

(4) There is a great opportunity to do social service work in this class of cases.

1021 Prospect Avenue.

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**Carelessness and Diphtheria.**—The office of the Georgia State Board of Health at Atlanta was recently compelled to close by an epidemic of diphtheria among the officers and employees. Ten persons were affected. Only the secretary and one other physician escaped the disease. The secretary of the board is reported to have said that the disease was contracted from specimens which were so carelessly prepared by the physicians who sent them in that no indication was given of what the package contained. Ordinary envelopes, it is said, were sent in containing portions of membrane placed between pieces of cardboard or paper; other envelopes contained cotton swabs which fell out when the package was opened. Even if this were not a violation of the postal laws, it is almost inconceivable that physicians could be so careless as to send in this manner material as deadly as dynamite or an infernal machine. It not only constituted a danger to the persons in the office of the health board, as the sequel proved, but it was also a menace to every one handling the mail *en route*. The responsibility of physicians in handling such material is great and the utmost precaution should be observed.—*J. A. M. A.*

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**Alvarenga Prize.**—The College of Physicians of Philadelphia announces that the next award of the Alvarenga prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about \$180, will be made on July 14, 1914, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be on any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the college on or before May 1, 1914. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of the competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned on application within three months after the award. Further information may be obtained on application to Thomas R. Neilson, M. D., Secretary, 19 South Twenty-Second Street, Philadelphia, Pa., U. S. A.

## FURTHER OBSERVATION ON THE COMPLEMENT FIXATION

### TEST IN GONOCOCCUS INFECTION.

By HARRY L. ROCKWOOD, M. D., Cleveland

Since making a report one year ago on a series of cases in which the blood serum was tested for gonococcal antibodies by the method of complement fixation I have had opportunity of further experience with this test in about 200 cases. These cases have come in large part from the Outpatient department of the Lakeside Hospital Dispensary and the private practice of Dr. W. E. Lower, under whose general direction the work has been carried on. Dr. H. L. Sanford also has given me the privilege of making tests in numerous cases. I wish to briefly submit a few observations which this experience had afforded in the application of this test to clinical work.

In any infection the surest diagnostic test will always be the isolation and observation of the specific infecting organism. No claims of greater accuracy can be made for any other method of diagnosis. Nevertheless, in a number of the infectious diseases such as in typhoid, tuberculosis, syphilis, and gonorrhoea, numerous conditions arise in which a successful search for the specific organism presents insurmountable difficulties.

It may be impossible to even locate the lesions in which the infecting organism has its focus, or, when located, these lesions are often too inaccessible to obtain a suitable specimen for bacteriological examination. Then again, providing a suitable specimen for examination is secured, secondary contaminating organism may so predominate as to render the isolation of the specific organism a matter of bacteriological technique not available. These are difficulties which present themselves in attempting diagnosis by finding the infecting microbe. A still more difficult problem presents itself when proof of cure is attempted by the same procedure. Here the lesions are absent or quiescent and as the specimens obtainable for bacteriological examination become progressively less characteristic of the disease under consideration the chance of locating the organism on a slide or in a culture tube from such specimens is much reduced.

These are the conditions under which a search for the specific organism may well be replaced by a search for specific antibodies.

Such specific antibodies arise from the presence of their respective infecting organisms. They represent the opposing forces of resistance which the patient has furnished in meeting the onset of disease. Except in cases of natural immunity, they must be aroused either by the disease itself while immunity is being acquired, or, in some instances, such antibodies may be produced by some method of treatment as in the use of bacterins, in which case the immunity thus created is artificial. Undeniable evidence of the presence of specific antibodies is then sufficient guarantee of the presence at some time of the bodies toward which they are antagonistic.

As a means of furnishing proper evidence of specific antibodies the blood serum is well adapted, and a specimen of blood serum for antibody examination has the great advantage of being homogeneous, any portion representing an exact proportionate combination of the same constituents. This is not the case in examination made for bacteria when the specimen is secured from discharges or from excreta. These vary with the functions of the organs from which they come, and a well known example is found in an examination of urinary shreds.

Further discussion of the relative merits of the two methods of diagnosis is unnecessary. I will simply call attention to the fact that the complement fixation test in gonococcal infection is essentially a search of the blood serum for gonococcal antibodies, and will summarize a few of the conditions in which this test has been found of service.

In cases of acute gonococcal urethritis of short duration the blood serum shows no evidence of antibodies. These do not appear in sufficient amount to respond to the fixation test until the end of the third week. Up to this time then the most available means of diagnosis lies in finding the Gram negative intracellular diplococcus in the urethral pus. But the question frequently arises, is this a new infection or an exacerbation of an uncured former attack? This question can be answered by an early fixation test; for a positive result indicating the presence of gonococcal antibodies when secured before the third week may be taken as evidence of an exacerbation of an old infection.

It sometimes happens that a non-specific acute urethritis arises with a history characteristic of gonococcal infection. Such conditions may arise when prophylactic measures are employed such as the use of strong permanganate solutions. The search

for the gonococcus is, of course, unsuccessful in such instances and a prompt fixation test at the end of the third week has been known to aid materially in relieving the suspense. In five (5) cases of acute urethritis of this character a test of the blood serum gave a negative reaction in each instance (100%).

Cases of chronic urethritis of gonococcal origin in which the gonococci were found at about the time of test almost invariably gave a positive blood reaction. In 33 cases, 28 or 85%, gave positive results. This group of cases has given the only indication of any lack of specificity in the fixation test. In a total of nearly 500 tests covering all classes of cases, five negative reactions were secured in four patients, 1%, where Gram negative diplococci were present in the urethral smear. No cultures were made and in their absence we have no absolute evidence that the organisms were, or were not, true gonococci.

In chronic gonococcal urethritis of long duration where no gonococci could be demonstrated in the discharge and where the date of infection varied from six months to 20 years previously, in 55 cases, 33 gave positive results (60%). In the negative 40% there were several cases where the urethritis was induced by stricture formation and of course, the presence of gonococci is no longer needed to account for symptoms arising in such conditions.

This brings up a point which must be kept in mind in properly interpreting the results of a fixation test. Such conditions as stricture urethrae, indurated epididymes following acute attacks of epididymitis, exostoses, or ankyloses following acute arthritic conditions, hydrosalpinx with no pus, hypertrophic veru montanum, are frequently post-gonorrheal conditions. Patients afflicted with one or more of these lesions may still harbor gonococci, but continued presence of the organisms is no longer accountable for the pathological lesion. It is therefore, equally true that gonococcal antibodies may or may not continue in such cases, and a test of the blood serum will give positive or negative results as the case may be. A further point to be made in this connection, however, is that when the gonococcus is present in such conditions as those just enumerated, the fact is much more surely determined by the fixation test than by a bacteriological search as usually conducted.

Probably the most serviceable application of the test is found in cases clinically cured. In this group of cases will be found

those who wish to be assured of their fitness for matrimony. It is this feature which has led the health boards, of various cities to take an active interest in the development of the fixation test and as the present day movement for eugenic marriages continues to grow a test which serves to eliminate physical examination and at the same time proves more accurate is bound to have its usage. It rarely happens that the treatment of a case of acute gonorrhoea is carried to a point where the effects of the infection are completely effaced. The persistent mucoid discharge characterized by the "morning drop," or the continued presence of urinary shreds, are after effects of gonorrhoea which continue long after treatment in many cases has been suspended. It is especially true that youthful patients are not hypercritical enough to care to continue their visits after the discomfort and obnoxiousness of the urethral discharge has ceased, and until the question of matrimony becomes imminent no concern is felt by the patient over such conditions. It is likewise true that patients are often discharged when they still harbor gonococci. The acute symptoms of infection having been reduced to a minimum, and with clinical conditions approaching the catarrhal state just mentioned, the search for gonococci may be found negative on examination of urinary shreds or "morning drop." Under these circumstances the patient often receives his discharge. That infection may be still present in a number of these cases is indicated by the fact that in a series of 122 cases clinically cured 19 or 15 per cent still gave positive blood reactions at the time of test. It is not always true in these cases that they still harbor gonococci when the blood remains positive; for a period of several weeks must be allowed for elimination of antibodies after the infection ceases before a negative blood test can be expected. However, such cases should be kept under observation as long as the blood remains positive, and under no circumstances should the candidate for matrimony be given a clean bill of health in such an event.

In the local complications of gonorrhoea in the male such as epididymitis and prostatitis, 75 per cent of cases in a series of 42 cases gave positive blood reactions. In none of the remaining 25 per cent of cases found negative was the gonococcus found in urinary shreds or urethral smears, although each gave a gonococcal history. These negative cases were of three classes; those which had received recent instrumentation of the urethra; those in which surgical procedures afterwards disclosed tuberculous lesions; and

those who had had previous attacks of acute epididymitis during the gonorrhoeal stage after which the epididymis remained indurated but not acutely inflamed at the time of test.

Attention has been called to the fact that antibodies are produced by the use of bacterins. It follows that cases which have been so treated are, for the time being, ineligible for the fixation test. This is for the reason that there is no means of distinguishing a positive reaction due to such treatment from one due to the infection. It is always advisable to postpone the use of vaccines until a positive fixation test is secured if the latter is to serve in diagnosis, and in cases tested for proof of cure a sufficient length of time should elapse after the last dose of vaccine to allow the antibodies thus artificially acquired to disappear. Two or three months is the period which most investigators advise waiting, but it is evident that much depends upon the quantity and efficiency of the vaccine used, as well as the method of administration.

In the diagnosis of arthritis most cases give positive blood findings when the condition occurs during an active gonococcal infection. Unfortunately I have had to disregard a number of arthritic cases in summarizing a series of tests made, for the reason that before the opportunity for making the test arrived, the patients had already received vaccines. Most investigators report at least 90 per cent of cases positive when the condition is acute of gonococcal origin.

The last group of cases to which I wish to call attention are those cases of a gynecological nature. Evidence that a gonococcal infection of the vagina alone will give positive blood findings is lacking. Schwartz and McNeil report 10 cases of vulvo-vaginitis in children tested by the means of complement fixation with no positive findings. One hundred per cent were negative. This is not the case, however, when the infection extends beyond the vagina and the reports of various workers indicate a large percentage of positive reactions in cases of undoubted gonococcal infection of the internal genital tract. Proper distinction must be made, however, between pelvic disorders which are post-gonorrhoeal and those due to an active gonococcal focus.

A positive fixation reaction has never been secured where a gonococcal infection was known to be absent.

During the past three years excellent clinical reports on the complement fixation test on gonococcal infection have been published by Schwartz and McNeil (1), who have contributed most



to this subject. Their claims have been fully substantiated by Gradwohl (2), Schmidt (3), Keyes (4), O'Neil (5), Gardner and Clowes (6), Owen and Snure (7), and others, and the general conclusion at the present time is that in this test we have a means of indicating the presence or absence of an active gonococcal focus which may be considered accurate, except in the early acute stages, in over 80 per cent of all cases.

(1) Schwartz and McNeil: *Am. Jour. Med. Sc.* 1911, cxli, 693; 1912, cxliv, 369 and 815.

(2) Gradwohl: *Am. Jour. Derm. and Gen. Urin. Dis.* June, 1912, 294.

(3) Schmidt: *Tr. Am. Urolog. Ass'n*, 1911, v, 30.

(4) Keyes: *Tr. Am. Urolog. Ass'n*, 1911, v, 37.

(5) O'Neil: *Boston Med. and Surg. Jour.*, 1912, clxvii, 464.

(6) Gardner and Clowes: *N. Y. Med. Jour.*, 1912, xcvi, 734.

(7) Owen and Snure: *Jour. Mich. State Med. Soc.*, May, 1913.

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**Sir William Osler on Medical Examinations.**—At the opening of St. George's Hospital Medical School, Sir William Osler delivered an address on examinations. He said that the great difficulty in medical study was the growth of every subject of the curriculum. An educational system framed for simple tests and simpler conditions had been outrun, and the pressure at the present day was hard on the teacher but harder on the student. From their medical workshops they turned out after five years' preparation the finished material, nearly one-half of which was declared to be defective and rejected. The growth of rejection in the final examination was demonstrated by the following figures: In 1861, 12 per cent; in 1876, 2 per cent; in 1886, 32 per cent, and in 1895, 41 per cent. He made the following suggestions. Simplify the curriculum so as to give the student more time. Allow the teachers a free hand in the matter of systematic lectures. Let the lectures be reduced to a minimum, or abolished altogether. The subject of medicine may be taught, for example, without systematic lectures. The lecture has its value, but its day is gone, and it should give place to other methods better fitted to modern conditions. They should boldly acknowledge the futility of attempting to teach all to all students. They should burn the anatomic fetish to which they had sacrificed long enough and to their great detriment. "Glance at Cunningham's 'Anatomy.' It has 1,465 pages, many in small type, and not one without a water-jump for the first grand national of the medical student. It is barbaric cruelty with so much ahead to burden the mind with minutiae which have only a Chinese value—a titanic test of memory." He would give credit for work done throughout the course. Let all who taught examine, and let education and examination go hand in hand. Further, he would simplify the examinations. Let them cut out the written papers, for as a student handled a patient, it was easy to tell whether or not he had had a proper training, and for that purpose fifteen minutes at a bedside were worth three hours at the desk. When possible, the evidence of original work should be substituted for examination. He would compel no student to pass an examination in the same subject a second time.—*J. A. M. A.*

## A NOTE REGARDING THE POSSIBLE SURGICAL CONTROL OF THE KINETIC SYSTEM\*

By GEORGE W. CRILE, M. D., Cleveland

From experimental and clinical observations it is obvious that the brain is powerless to act efficiently or long without the aid of some at least of the kinetic organs—the adrenals and the liver for example.

The adrenals are at least partially under the control of the nervous system. In part then the fabrication of muscular and febrile action is the result of the activity of the adrenals in response to stimuli from the brain. That is to say—there exists between the brain and the adrenals a reciprocal relation. This fact and the belief that a similar correlation exists between the brain and the other organs in the kinetic chain discloses to the surgeon a possible means by which he may surgically modify certain kinetic diseases such as epilepsy, cardiovascular disease, Graves' disease and neurasthenia, and possibly glycosuria and diabetes as well.

These kinetic diseases are the result of the excessive activation of this or that part of the kinetic system. This excessive activation of the kinetic system may be rhythmic and involve for the most part the voluntary muscular system as in epilepsy; or it may be constant and involve mainly the muscles of the vascular system—as in cardiovascular disease; or it may be an inclusive body-wide activation—as in Graves' disease. Therefore, by excising part of the thyroid, or a portion of the adrenals; by dividing at various points the sympathetic nervous system—the surgeon may possibly modify the activity of this or that part of the kinetic system—or of the entire kinetic system—and as a logical consequence he may modify or possibly control these kinetic diseases. Unless these diseases can be so modified or controlled then the kinetic theory as presented is of no clinical value and may well be abandoned. However, even now we have certain straws of clinical evidence which point to the further development of this clinical consummation which is hoped for.

*First*, exophthalmic goitre—one of the principal kinetic diseases—has frequently been modified by ligation or excision of a lobe of the thyroid; by dividing the sympathetic nerve trunks

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\*Editor's Note: This supplements the author's article on "The Kinetic System", in the October number of this Journal.

in the neck; by excluding kinetic stimuli—whether they be toxic, psychic, diatetic or those resulting from auto-intoxication. *Second*, morphia, by temporarily lessening the activity of the cerebral link in the kinetic chain, mitigates such activations as anaphylaxis, acute infections, surgical shock, and to some extent cardiovascular disease, and epilepsy. Of importance also is the fact that various forms of opium are beneficial in diabetes. *Third*, the entire group of kinetic diseases are aggravated if not produced by the agencies that activate the kinetic system, and on the other hand all the kinetic diseases are modified or temporarily controlled by narcotics and anesthetics.

Will these facts as already stated—point the way to the possible surgical control of the kinetic diseases? This at least is the hope entertained by my associates and myself, who are now making observations to this end on three patients, the results of which will be published later.

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**Eyes at Auction.**—How much is your sight worth to you? Doubtless an incalculable sum. In that case, and if you are going to the Panama-Pacific Exposition of 1915 in San Francisco, you will do well to steer clear of the official vision tinkers. For the directors of the exposition have, in a sense, put your eyes up at auction. They plan to dispose of the spectacle-selling concession at the exposition to the highest bidder, in spite of repeated protests that thus they “take a purely commercial view of the transaction and utterly ignore the fact that better vision is not merely a matter of barter, but of professional skill and service,” to quote the president of the American Optical Association. When, in August, *Collier's* criticized this attitude, the director of the Division of Exploitation telegraphed a protest, offering to submit contracts and correspondence in defense of the project. By return mail we requested that the evidence be sent. No further word has been received, although six weeks have passed, up to the time of this writing. Evidently, then, the directors are going ahead without regard to the eyesight of the public, to make what profit there is in it. But why stop at eyes? Is there no golden opportunity in the dental privilege? Surely some Painless Parkins ought to “come across” roundly for the exclusive graft in tooth pulling. What about lungs? Duffy's Malt Whiskey ought to put up a thumping price for the consumption concession. And there could not but be a pretty penny in the Bright's-disease-and-diabetes privilege; old “Dr.” Kilmer please write. Furthermore, Dr. Hartmann of Peruna fame is still exchanging fake promises for dollars; it should take some bidding to beat him out for the catarrh permit. And how is it that gentlemen with the keen business instincts of the San Francisco managers haven't thought of inciting a profitable rivalry between Anti-Kamnia and Orangeine for the headache rights? Obviously there is a broad and fertile field of enterprise here. With neither principles nor pride to deter them, the Panama-Pacific exploiters would get enormous returns on a sale-to-the-highest-bidder partnership with the great American Fraud—and the public be duped.—*Collier's*.

## EDEMA OF THE MACULAR AREA OF THE RETINA WITH A REPORT OF CASE

By CHARLES C. STUART, M. D., Cleveland

The history of the case which is presented for your consideration, is that of a young married woman twenty-four years of age, who first came under my observation on September 15, 1911, or slightly over two years ago. She was referred to me by Doctor F. C. Herrick. About ten days before coming under observation, she began to have severe headaches: four days later, in addition to headaches which were becoming worse, blurred vision was noted; this began in the right eye and later, involved the left eye. With the appearance of the latter symptom, there was nausea and vomiting once or twice daily, and this continued three days. At this time also, a fresh cold in the head appeared with some nasal discharge, but no nostril occlusion. At the time of examination, this had disappeared except for a slight catarrh, which is always present. Such were the prodromal symptoms.

In the family history, everything is negative. The parents are alive and well: we are able to question them thoroughly and nothing suggestive could be obtained. The Wasserman reaction was tried on each one and found negative. The patient had been married fifteen months, and a questioning of the young husband revealed no venereal history, except one attack of the Neisser infection contracted long before marriage, which was most carefully cared for by Doctor Herrick over a long period of time, until a most careful scrutiny of urine revealed no shreds or other evidence of the infection; his Wasserman reaction was also negative.

The results of physical examination of the patient are negative as to heart, lungs, abdomen and urine. A test of subcutaneous injection of tuberculin is also negative. Patient was not at the time, and never had been pregnant; menses are always regular, without pain, and the last one began on August 30th, or two weeks before coming under observation.

The examination of the right eye shows a clear media, the disc edges hazy and somewhat concealed by edema, veins large, tortuous and congested, arteries tortuous and in places reduced in calibre. The fundus surrounding the nerve is edematous, especially in that area between the disc and macula. A similar con-

dition exists in the left eye, except that the nerve head is more visible.

At the time of the first examination, the vision of the right is 3/50 of normal: and of the left eye is 6/20 of normal. There are no hemorrhages in either eye. The instillation of atropin in each eye is begun. The next day, the eye grounds are again carefully inspected. The irides dilate evenly, fully and show no signs of iritis. By scope, disc edges are noted as covered with edema as before, but there is no gross protuberance of papilla above surrounding tissue: the condition of left eye is the same as that of right eye, but disc outlines are seen slightly plainer. At this point in time, I was taken sick, and during a period of ten days, patient was under the care of my colleague, Doctor W. E. Bruner. He has kindly allowed me to make use of his notes, and I quote his notes as result of his examination on the 19th: "Right eye—Media clear, disc round, all edges entirely hidden, but still slight cup showing, veins congested, arteries rather narrow, but tortuous: very marked neuritis or papillitis though no definite swelling of nerve above rest of fundus. Fundus surrounding nerve edematous, especially from nerve to Macula and beyond: no hemorrhages; no spots of exudate in fundus. Left Eye—Similar equally marked neuritis or papillitis, but no more definite swelling: Similar edema of retina. At this time, right tonsil showed a white spot, and there was a slight hypertrophy of turbinate of the left side. The fields showed no central scotoma for form or color, but an enlarged blind spot for color in each eye.

September 23. Doctor Herrick reports lumbar puncture suspicious.

On this day O. D. + 3.00<sup>s</sup>V=6/30.

O. S. + 2.00<sup>s</sup>V=6/22.

September 26. O. D. + 4.00<sup>s</sup>V=6/60.

O. S. + 4.50<sup>s</sup>V=6/30.

Scope examination shows papillitis as marked or even more pronounced: Surrounding retina swollen in each eye. Veins full and tortuous. In O. D. a flame shaped hemorrhage is present at outer edge of disc: none in O. S. Again form field taken and found normal.

At this time, the nose and accessory sinuses were carefully examined by Doctor Lenker and found normal. The case returned to my hands for care on Sept. 30th, and my notes show on that day,

O. D. + 5.00<sup>s</sup>V=6/20.

O. S. + 2.00<sup>s</sup>V=6/16.

Scope examination shows the swelling greatest at the macula, and smallest at the nerve head. A slight hemorrhage is seen in O. S.

Oct. 4th. O. D. + 5.00<sup>s</sup>V=6/25.

O. S. + 6.00<sup>s</sup>V=6/16.

Oct. 7th. O. D. + 7.00<sup>s</sup>V=6/40.

O. S. + 7.00<sup>s</sup>V=6/20.

The edema in each eye is greatest as one approaches the macular area.

October 11th. A few spots of iritic adhesion are noted on the anterior lens capsule in the right eye and one spot only in the left eye. The swelling is confined to the macular area, and today there is noted for the first time a few discrete white spots not unlike those of a choroiditis, in the nasal periphery of each eye ground.

O. D. + 8.00<sup>s</sup>V=6/20.

O. S. + 7.00<sup>s</sup>V=6/25.

This is the time and amount of greatest edema, and from this point on, my history notes show a gradual subsidence which is observed by the scope and measured by the gradual decrease in strength of convex spherical lenses used in testing the vision.

Nov. 9th. O. D. + .75<sup>c</sup> × 90V=6/20.

O. S. — .50<sup>c</sup> × 180V=6/16.

Binocular V = 6/13-2.

The scope examination now shows the edges of the disc: in the macular area, a wrinkling is occurring as evidenced by white bands extending from the disc to the macula.

Nov. 22nd. O. D. + .25<sup>s</sup> + .75<sup>c</sup> × 90 V = 6/16.

O. S. + .75<sup>c</sup> × 180 V = 6/10.

Binocular V = 6/8.

Lenses are ordered on this date, to be worn constantly.

January 12, 1912. O. D. V = 6/25.

O. S. V. = 6/6.

Binocular V = 6/6.

October 18, 1912. O. D. V = 6/32.

O. S. V = 6/4.

The condition of the fundi as revealed by the scope in a recent examination shows, in the right eye, an area of atrophy lying at the outer disc edge; some atrophy of the nerve head, some degenerate changes in the perimacular area and some pig-

ment disturbance changes through the entire fundus. In the left eye, there are pigment disturbance changes about the nerve head, extending out to the macula and thence outward some wrinkling of the retina. There are no choroidal atrophic areas.

I wish also to present a perimetric chart of each eye, which shows practically normal conditions as to form and color fields, except the central scotoma for form and color in the right eye, some slight contraction for color in each eye, and a slight area of haziness in the left eye near the blind spot. The vision of the right eye is now 6/25, and of the left eye is 6/5. The treatment of the case was symptomatic and empiric. Reliance was placed upon the use of potassium iodid to reduce the edema; at the time also, moderate doses of bichlorid were exhibited. During the period of edema, she was also given sweat baths. Locally, the eyes were kept at rest with atropin, and in the late stages, dionin was administered.

To give a brief resume of the history of the case:

A young married female with no previous suggestion of taint of any kind, suddenly develops an edema of the retina of each eye: this edema is localized to the area of the papillo macular bundle of nerve fibres and involves also the optic nerve. The attack is preceded by a week of almost unendurable headache. The only suggestion of lues was obtained by a lumbar puncture. The edema lasted about one month, and on subsidence left a wrinkling or rucking of the retina with certain destruction of nerve elements in the right eye, as evidenced by decreased vision, and a return to practically normal condition in the left eye. There is now a period of two years since the attack, and the report of the case is made late enough to be assured that conditions which now prevail, are permanent. What has occurred in this pair of eyes?

- (1) Was this a bilateral lesion primarily of the *uvea*?
- (2) Was this a bilateral lesion primarily of the *retina*?
- (3) Was this a bilateral lesion primarily of the *optic nerve*?

1. Although I have given much consideration to the thought that the uvea was the source of trouble, I am inclined to dismiss that as the cause of trouble. The iritic spots on the capsule are suggestive, as also the fact that each retina has returned to normal function. Against it, lies the inability to explain the appearance of a well congested nerve head, and some slight hemorrhage and also explain why a retinal edema, if it

were due to choroidal trouble should be thus localized to the area between the disc and macula.

2. Is this a primary bilateral lesion of the retina? I think not, but if so, it must have been very mild. Parsons says, "Edema of the nerve fibre layer may pass off without leaving any permanent damage, but when the internuclear layer is involved, permanent injury results." Besides, a pure retinal lesion ought not to produce the intense prodromal symptoms which this young lady experienced.

3. I am, provisionally, at least, inclined to the belief that the primary trouble lay in the papillo-macular bundle of fibres of the optic nerve: that the trouble was central in origin and might have consisted in a small gumma at the centre for this bundle: that the retinal and optic edema was secondary and passive, and luckily did not become intense enough to destroy terminal nerve elements.

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**Use of Heroin Spreading Rapidly Among Drug Fiends.—Laws Against the Promiscuous Sale of Morphin and Cocain Leading Those with Drug Habits to Take Up Even More Dangerous Substances.**—According to information gathered by the U. S. Department of Agriculture, there has been a sudden and very significant increase in the use by persons with a drug habit of the little-known but very dangerous drug called "heroin". The sales of this drug have recently increased greatly, particularly in those States which have rigid laws preventing the indiscriminate sale of morphin and cocain. Investigation of the subject establishes the fact that many drug victims who formerly used morphin and cocain and who under the new laws find it difficult to obtain these substances have begun using heroin, the sale of which is not yet as carefully restricted under State laws. The drug is said to be fully as dangerous as morphin and by many is held to be much worse, for the reason that it occasionally kills the victim outright and its habit is far harder to overcome than the use of the other drugs. The Department, pending further action, specially warns all people who are unfamiliar with the drug to avoid all preparations containing the substance and to take it only on the prescription of reputable physicians.

Heroin, the consumption of which by drug takers has recently increased so markedly, is a derivative of morphin, the opium alkaloid. It is known in chemical parlance as diacetyl morphin, and it is frequently found as a constituent of a number of proprietary drugs. Its use seems to be especially notable in parts of Pennsylvania. This year the coroner's office in Philadelphia County has held inquests on five sudden deaths from heroin poisoning. In each case the victim was a heroin fiend and was on a heroin debauch and took an overdose. The substance apparently is far more dangerous for drug users than morphin or cocain. Drug fiends apparently are able to consume relatively large quantities of the other two drugs, but any sudden and material increase in the amount of heroin taken is very liable to prove fatal. As indicating the wide sale of this substance, it is known that one druggist in Pennsylvania whose store was located in an undesirable section of his city has been buying heroin tablets in 25,000 lots.

The word "heroin" on any label should be regarded as a danger signal, according to the experts of the Department.



## A REPORT OF A CASE OF CONCUSSION CATARACT

By D. A. PRENDERGAST, M. D., Assistant Surgeon in the Nose, Ear and Throat Department of the Dispensary of the Lakeside Hospital and Western Reserve University; Consulting Oculist to St. Ann's Maternity Hospital, Cleveland.

Cataracts coming on after a severe blow upon the skull, some distance from the eye with no demonstrable injury to the external structures of the eye and no injuries to the lens capsul are rare.

The history, the findings and the final result of the case to be reported warrants the clinical diagnosis of concussion-cataract.

*Case Report.* The patient who was referred to me by Doctor K. E. Ochs, is a man aged 26. The family and personal history have no bearing of any importance upon the present condition.

*Present Illness.* One month ago he was struck with a blunt object upon the left temple. He was stunned by the blow but not rendered unconscious. He claims that the injury did not cause him much inconvenience. About one week after the injury when unconsciously covering the normal eye he noticed a blurring of vision. Within the next two weeks the eye had become totally blind.

*Physical Examination.* The patient is a robust young man who is apparently in good health. The right eye is normal V. 6/6. The external structures are normal. The ophthalmoscope showed nothing pathological. The left eye presented the following upon examination: The surface of the cornea was perfectly even and uniform. The lustre of cornea was normal in every part. There were no deep opacities. The iris was of normal color and was active to both light and accommodation. With the aid of atropin synechia were excluded. The cataract involved the whole lens. A careful search for any signs of injury to the anterior lens capsul proved negative. An X-ray examination by Doctors Hill and Thomas also proved negative. It was impossible in this case as in all cases of concussion cataract to exclude any tearing of the posterior lens capsul. Having this in mind the patient was advised to wait for at least one month. The reason given for this was that if the posterior lens capsul was injured there might be absorption of the cataract by the vitreous. At the end of one month the con-

dition was about the same. Operation was then advised. The usual dicission operation was done. There was a prompt absorption of the lens after needling. The ophthalmoscopic examination two months after the operation was negative to any pathologic condition. Special attention was paid to the posterior lens capsul for any tearing of the same would undoubtedly leave an opacity in healing but nothing of that nature was made out. The media was perfectly clear. The disc was slightly oval, with a small pigment ring to the temporal side. The vessels were normal. The fundus was seen most clearly with a plus 14 lens. With correcting lenses the vision was 6/9.

1110 *Euclid Avenue.*

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**America's Foremost Service.**—If the question were asked twenty years hence what has been America's greatest service to civilization, not unlikely the answer would be its teaching of scientific sanitation to the world.

The Rockefeller Foundation has organized the International Health Commission, which is just starting the most ambitious sanitary project ever conceived. It proposes, with Rockefeller's money and the cooperation of the governments in the world's tropics, to eradicate hookworm disease. In our own Southern States, in less than three years, over a half million people have been treated for hookworm. The treatment is simple. It makes new and useful men, women, and children of the unfortunates who have been afflicted. To make the cure permanent, however, real, effective sanitation must be achieved. The International Commission proposes, first, to dose with thymol and Epsom salts the people of the world's tropics and sub-tropics—hundreds of millions of them—and then to teach them sanitary measures that will obviate the necessity of repeating the dose.

It is a tremendous undertaking; but the world's government, knowing that hookworm disease and kindred ailments are largely responsible for human inefficiency in the hot countries, are enthusiastically cooperating. In inception, organization, and backing, the project is all American.

Our Colonel Gorgas made the canal zone habitable; made it, indeed, one of the most healthful places in the world from being one of the most unhealthful. His work is done there, and he is drafted to South Africa to prescribe measures to eradicate pneumonia among the Rand miners. It is an entirely different problem from that of Panama; but sanitation is relied on to solve it.

The demonstration of sanitary efficiency as a restorer for the tropics has been made by Americans in the canal zone, in Cuba, in the Philippines, in our Southern States. Oriental governments have studied and profited by our work in the Philippines; Latin-American countries have profited by the example of the canal zone, and even drawn American experts to supervise their own organization of proper sanitary agencies, as South Africa is now doing.

A few years ago the American abroad grieved because his porcelain bath-tub and open plumbing were almost unknown. Now he realizes that his bath-tub was the forerunner of an earth-wide campaign that promises to add a vast area to the productive capacity of the world. If the tropics can be redeemed and made comfortably habitable for men and their best civilization, the producing capacity of these regions will be largely multiplied. And American sanitation promises just that.—Munsey's Magazine.

## THE MECHANISM OF THE ACTION OF HEXAMETHYLENAMIN\*

By PAUL J. HANZLIK, M. D.

(From the Pharmacological Laboratory, Medical School, Western Reserve University, Cleveland)

Hexamethylenamin has been recommended as an antiseptic agent for practically all of the body fluids, largely on the basis of the fact that after internal administration it has been found present everywhere in the body. Although it has been quite generally recognized that hexamethylenamin is practically non-toxic, the criteria for its action as an antiseptic have only comparatively recently begun to be appreciated. Its decomposition into ammonia and formaldehyd is well known, and it is generally believed that the bactericidal properties of hexamethylenamin are due to the liberated formaldehyd. However, there has been no absolute proof that free hexamethylenamin itself may not prevent bacterial growth. Indeed it has been maintained that hexamethylenamin itself is bactericidal and that the presence of free formaldehyd is not necessary when it is to be used as an antiseptic.

The conditions under which formaldehyd may be liberated from hexamethylenamin have been ascertained largely from experiments *in vitro*. Some of these factors are changes in temperature; time allowed for the decomposition to take place; and reaction of the solution. The last is, undoubtedly, the most important factor. In general, acids are known to facilitate its decomposition, while alkalies prevent it. It is necessary to study the influence of these factors under conditions simulating those of the body; and especially in the living organism. This is especially necessary in the light of the modern conceptions of the true reactions of the various body fluids according to Sørensen, L. J. Henderson and others. Tests for the appearance of hexamethylenamin and formaldehyd in urine and other body fluids have been quite extensively employed, but often with confusion as to their delicacy and clinical applicability and without due appreciation of their worth and significances. Tests have been accepted as conclusive for formaldehyd which do not differentiate between free hexamethylenamin and free formaldehyd. Certain tests are thought to be best suited for clinical application, others for pure chemical work only.

As briefly as possible, I shall attempt to present some definite information concerning the applicability of various tests for free formaldehyd and free hexamethylenamin; the various conditions under which the liberation of formaldehyd takes place; and to prove definitely that hexamethylenamin itself is not bactericidal.

In our work we have sought to correlate as much as possible the chemical data obtained with experiments *in vitro* and on lower animals with observations upon patients. The clinical material was obtained mostly from the medical wards and dispensary clinics of Lakeside Hospital and Western Reserve University; in part from the City Hospital and Charity Hospital.

### 1. Tests for Hexamethylenamin and Formaldehyd.

*Bromin-water test for free hexamethylenamin:* This test is described by Nicolaier as follows: Fresh bromin water gives an orange-yellow precipitate when added directly to solutions containing hexamethylenamin. The precipitate forms at the moment of contact with bromin water, but redissolves until three to four drops of the reagent have been added. The merest trace of hexamethylenamin gives a precipitate. No precipitate is formed with free formaldehyd. The test is applicable to urine, but not to other body fluids containing proteins such as blood, blood-serum, cerebrospinal fluid, pleural, pericardial and synovial fluids and urine containing albumin, because the proteins themselves form a precipitate. In order to test for hexamethylenamin in fluids where the bromin-water test is not applicable, the fluid is distilled alone or with the addition of a little mineral acid and either of the following tests for formaldehyd are applied to the distillate.

*Tests for free formaldehyd.* Many of the most widely employed tests for free formaldehyd involve the use of acids, which would decompose the hexamethylenamin, and would therefore be unsuited for distinguishing between free formaldehyd and hexamethylenamin. Only those which are made in weekly alkaline reaction are suitable. This limits the choice practically to the phenylhydrazin and phloroglucin tests.

*Phenylhydrazin-Nitroprussid Test for Free Formaldehyd:* This test was first described by Rimini, later by Arnold and Mentzel. Three reagents are necessary. (1) Phenylhydrazin Hydrochlorid 0.5 per cent in water; (2) sodium nitroprussid 5 per cent in water; (3) sodium hydroxid 10 to 20 per cent. The test is performed in the cold or at ordinary room temperature as follows: To 5 to 10 c. c. of the fluid to be tested contained in a test tube are added three drops of the phenylhydrazin, two drops of the nitroprussid and three drops of the alkali in the order mentioned. If formaldehyd is present in an aqueous solution an emerald green to a deep blue color is formed (depending upon the concentration of formaldehyd) at the moment when the alkali comes in contact with the fluid. This color gradually diffuses throughout the fluid and almost at once begins to disappear, particularly in highly dilute formaldehyd solutions, changing finally from an orange-yellow to a wine-red color. With water alone the test gives a greenish yellow at the moment the alkali is added, making it entirely indistinguishable from very dilute solutions of

formaldehyd (1:2,000,000 and higher). The change to wine-red occurs much more rapidly in water than in solutions containing formaldehyd which are positive with the test. In urine containing formaldehyd the sequence of colors is as follows: As soon as the hydroxid is added a deep purple color (generally, but not always) is formed. This quickly changes to green, then to yellow and finally a yellowish red. The test is directly applicable to all body fluids except bile and whole blood, owing to the color possessed by these fluids. The limit of delicacy obtained with the phenylhydrazin test was 1:1,000,000 formaldehyd in water or light amber colored urine.

*Phloroglucin Test for Free Formaldehyd:* This was first described by Jorissen. The reagent used consists of phloroglucin (Reagent-Merck) 0.1 gram dissolved in 10 c. c. of 10 to 20 per cent sodium hydroxid. When first prepared the solution acquires a bluish violet color, but on standing becomes entirely colorless or with at most a yellowish tinge. The reagent may be used freshly prepared since the violet color does not interfere with the red of formaldehyd. The test is performed in the cold or at ordinary room temperature by the direct addition of about 0.5 c. c. of the reagent to about 1 to 2 c. c. of the fluid containing formaldehyd. A deep bright red appears instantaneously with higher concentrations of formaldehyd, but with lower concentrations of formaldehyd it requires about one-half to one minute for the color to reach its maximum intensity. The color persists for at least five minutes with dilute solutions and much longer with concentrated formaldehyd solutions. The test is directly applicable to all body fluids except whole blood and bile. The hemoglobin of fluids containing a trace of blood (enough to give a red tint) is immediately reduced by the alkali of the reagent, the solution assuming a yellowish color and does not interfere with the formaldehyd reaction. The reagent added to water alone gives a clear colorless solution. The limit of delicacy obtained with the phloroglucin test was 1:10,000,000 formaldehyd in water or light amber colored urine.

The phenylhydrazin test requires three reagents two of which are unstable and the several changes of color in urine add an element of complexity. On the other hand, the phloroglucin test gives a constant red color with gradations of intensity depending upon the concentration of formaldehyd; its application is exceedingly simple; it requires only one reagent and for these reasons alone should be preferred to the phenylhydrazin as a more practical test.

## 2. Acid Facilitates, alkali inhibits the liberation of formaldehyd from Hexamethylenamin in body fluids.

The comparative ease with which hexamethylenamin decomposes in aqueous acid solutions, and its lack of decomposition in aqueous alkaline solutions might conceivably be somewhat modified in body fluids, for instance, by ferments. It was found that solutions of hexamethylenamin (0.1 and 0.5 per cent) in water and in various body fluids (urine, extract of pancreas, serum, ascitic fluid, egg albumin, cerebrospinal fluid, fluid of mesenteric cyst) did not liberate formaldehyd immediately but did so on boiling, or on incubation for one to five hours at 37.5° C; or at once when acid was added. Alkalies prevented the libera-

tion, except in a few doubtful instances. In other words, the behavior of hexamethylenamin was practically the same in body fluids as in water alone treated similarly.

### 3. Culture Experiments with Hexamethylenamin and Formaldehyd in Body Fluids.

Experiments were made to determine directly the antiseptic effects of various proportions of hexamethylenamin in body fluids; and to observe whether the antiseptic effects go parallel with liberation of formaldehyd. This direct determination seemed worth while, because the higher protein content, etcetera, of such fluids might conceivably modify theoretical effects. It was found that the limit of bactericidal efficiency with formaldehyd in abnormal body fluids in general is from 1:10,000 to 1:5000 for a majority of different organisms used. With hexamethylenamin in the same fluids bacterial growth was not prevented in any of the fluids even in solutions containing 0.5 per cent of hexamethylenamin, a proportion much higher than could obtain anywhere in the body. It is, therefore, *improbable* that the administration of hexamethylenamin could have marked antiseptic effects in the tissues, although a partial restraining action is not positively excluded. Traces of formaldehyd were liberated, but not enough to be effective, i. e., it must be less than 1:10,000.

### 4. Hexamethylenamin Itself is not Bactericidal.

The experiments just referred to indicate that the bactericidal efficiency of hexamethylenamin depends upon the liberated formaldehyd. The question whether hexamethylenamin as such is antiseptic was decided definitely in the negative by incubation experiments with several species of bacteria in hexamethylenamin media in which the liberation of formaldehyd was prevented. This medium consisted of agar modified with sodium carbonate or with ammonium hydroxid. In this way an alkaline medium was secured which prevented the liberation of formaldehyd and allowed the hexamethylenamin to act as such upon the bacteria. All of the cultures consisted of plates. Different concentrations of hexamethylenamin were used, but the total volume of the culture in each case was always the same. The same volume of a dilute culture of the bacteria was used in each plate. At the end of the incubation period, a small portion of the culture material was excised, treated with a little (5c. c.) distilled water and tested with the phenylhydrazin and phloroglucin tests for formaldehyd.

It was found that all the cultures to which no alkali was

added, and in which liberation of formaldehyd took place, showed no bacterial growth in concentrations of 1:100 and 1:50 of hexamethylenamin. In the concentrations lower than 1:100, bacteria grew about as efficiently as in plates containing no hexamethylenamin. In these low concentrations of hexamethylenamin not enough formaldehyd was liberated to inhibit the growth of bacteria. The presence of formaldehyd in the plates was confirmed by the tests.

On the other hand, in agar modified with ammonium hydroxid and sodium carbonate, and which did not contain liberated formaldehyd, the growth of bacteria took place uniformly throughout all of the plates, even those containing 2 per cent of hexamethylenamin. These results stand out as a convincing proof that hexamethylenamin itself is not bactericidal, but that the bactericidal properties depend upon the liberation of formaldehyd.

#### 5. Hexamethylenamin does not Liberate Free Formaldehyd in Body Fluids, Except when Truly Acid, Namely, Urine and Gastric Juice.

Since the bactericidal properties of hexamethylenamin depend upon the liberated formaldehyd, it is essential to ascertain the factors which determine this liberation under biological conditions. The possible factors are acidity, temperature, time, concentration, ferments, and perhaps others. Of these, as has been stated, the acidity of the fluid is of the greatest importance. Our results indicated that the liberation could occur with degrees of acidity lower than those appreciated by litmus, and closely approximating that of certain body fluids. On the other hand, no decomposition whatsoever occurred in solutions rendered alkaline by 0.2 per cent sodium carbonate, a degree of alkalinity frequently exceeded by certain body fluids, particularly in the gastro-intestinal tract. Therefore, we resorted to the determination of the true reactions of fluids by the use of the indicator methods elaborated by Sørensen and later extended by L. J. Henderson and others to the various body fluids.

*True Reaction:* Briefly, the true reaction of a solution in terms of physical chemistry depends upon the relative concentrations of the hydrogen (H) and Hydroxyl (OH) ions therein. When the concentration of the hydrogen and hydroxyl ions are equal, the condition is spoken of as neutrality. When there is a preponderance of hydrogen (H) ions true acidity exists, while a preponderance of hydroxyl (OH) ions means true alkalinity. The hydrogen may come from an acid such as hydrochloric acid (HCL) or an acid salt such as monosodium phosphate

( $\text{Na H}_2\text{PO}_4$ ). In any case it is only the hydrogen which is ionized or dissociated that is pertinent to the acid reaction of a solution. These ions possess certain electric charges, for when water or electrolytes (salts) are decomposed electrolytically the acid ions aggregate at one pole, while the basic ions aggregate at the other pole. Thus hydrogen ions carry a positive charge and aggregate at the negative pole. The mode of expression commonly used is  $(\overset{+}{\text{H}})$ ; for hydroxyl ( $\overset{-}{\text{OH}}$ ).

The reaction of a solution can be given a quantitative expression by measuring the values of  $(\overset{+}{\text{H}})$  and  $(\overset{-}{\text{OH}})$ . This is highly essential for the accurate study of the relation of reactions to different chemical phenomena. First, the point of neutrality must be known. It has been determined experimentally that at  $25^\circ \text{C}$  the concentrations of  $(\overset{+}{\text{H}})$  is 0.000,000, 1 gram and that of  $(\overset{-}{\text{OH}})$  is 0.000,0017 gram in 1000 grams of water. Dividing this by the atomic weights it is seen that the number of  $(\overset{+}{\text{H}})$  and  $(\overset{-}{\text{OH}})$  ions is alike, as demanded by theory. Expressed logarithmically the figure for the ionized hydrogen ( $\overset{+}{\text{H}}$ ) would read  $(\text{H}^{10^{-7}})$ . as the quantitative expression of neutrality. For convenience the exponential digit alone with the minus sign is now used, that is, instead of  $(\text{H}^{10^{-7}})$  merely 7.0 is written. We have used this mode of expression in our paper. A number of actual  $(\overset{+}{\text{H}})$  determinations will serve to illustrate just what is meant by alkalinity and acidity:

Lowest $(\overset{+}{\text{H}})$ conc.=	7.3	}	true alkalinity
	7.2		
	7.1		
	7.0	= neutrality	
	6.9	}	true acidity
	6.8		
	6.7		
Highest $(\overset{+}{\text{H}})$ conc.=	6.6		
	6.5		

The method now commonly used for the determination of the  $(\overset{+}{\text{H}})$  consists essentially of a series of indicators which produce certain changes of color with certain definite ranges of the  $(\overset{+}{\text{H}})$  concentration.

It was shown in one of our earlier publications that after internal administration of hexamethylenamin the saliva does not contain free formaldehyd, and Rieder and Schröter and Schmid have shown that human milk does not contain it. In other body fluids such as bile, cerebrospinal fluid, blood serum, synovial, pericardial and pleural fluids, vitreous and aqueous humors no data are available from the literature as to the presence of free formaldehyd. This is due largely to the character of the tests employed. That is, these tests apply to both free formaldehyd and to formaldehyd liberated by the action of sulphuric acid (and other acids) on hexamethylenamin. Concerning the presence of formaldehyd in hexamethylenamin urines, it was shown by G. W. Smith of Boston during the course of our work that its liberation depended upon the hydrogen ion concentration



of the urine. Smith used the phenylhydrazin-nitroprussid test for formaldehyd. Sometime previously, Jordan, estimating the reaction by titration and using the phloroglucin test, and just recently F. Hinman (J. A. M. A., 1913, Vol. LXI, p. 1601) estimating the reaction by titration, but using the phenylhydrazin-nitroprussid test for formaldehyd, concluded that formaldehyd is not liberated in most acid urines. It must be urged, of course, that titration acidity does not represent the true reaction of a fluid.

In our work, the true reaction of all body fluids has been measured in terms of hydrogen ion concentration, and the phloroglucin test for formaldehyd has been employed in all instances, and simultaneously the phenylhydrazin-nitroprussid test in a great many. We have examined urines, cerebrospinal fluids, blood, gastric juice, bile and pathological fluids from individuals receiving hexamethylenamin; these (excepting pathological) and others fluids chiefly from dogs.

The experiments on dogs consisted of injecting hexamethylenamin directly into a ligated loop of intestine and noting the time of appearance of hexamethylenamin and formaldehyd in the blood and urine (from the ureters) at short intervals of time. The experiments were usually conducted until the height of hexamethylenamin excretion had been reached in the urine, as judged by the character of the precipitates with bromin-water. Then the animal was bled and finally killed with chloroform. The remaining body fluids were now obtained by careful opening of the different cavities and pippered out.

The freshly voided urines from human individuals consisted of fractional specimens which were obtained as often as the individuals (dispensary patients and laboratory assistants) could micturate. Standing urines represented collections of twenty-four hours in the majority of cases. These were obtained chiefly from patients in the wards. The dosage of hexamethylenamin varied, but enough was usually excreted in the urine so that liberation of formaldehyd could take place.

*Blood.* The results showed that hexamethylenamin appears in blood about five minutes after administration of the drug. The maximum concentration appears in about thirty minutes. Of course, this will be influenced by the rate of absorption. It was shown that free formaldehyd did not appear in the bloods of any of the animals and our protocols showed that free formal-

dehyd was absent in all of the samples of blood collected. The  $(\overset{+}{\text{H}})$  concentration of blood-serum is known to be never below 7.0 and it may be slightly alkaline. The bloods of several dogs which we have examined showed it to be 7.0 as a rule; that is, it is neutral. This explains the absence of formaldehyd in bloods containing hexamethylenamin.

The bloods of fourteen different patients who received two grams each of hexamethylenamin before the sample was collected, showed the presence of hexamethylenamin, but no free formaldehyd. The  $(\overset{+}{\text{H}})$  concentrations of their sera ranged from 7.4 to 7.15, the mean value being 7.2.

*Freshly Voided Urines.* Hexamethylenamin appeared in the urine of dogs in approximately nine minutes after administration. The time of maximum concentration as judged by the character of the bromine-water precipitates varied considerably in the different individuals, but in the animals with a good continuous secretion of urine it might be said to have taken place about forty-five minutes after administration.

The average time of appearance of formaldehyd was sixteen minutes, i. e., somewhat delayed as compared with that of hexamethylenamin. All of the urinary specimens collected were acid to litmus which means that they possessed a fairly high degree of acidity by the indicator method used for the estimation of  $(\overset{+}{\text{H}})$  concentrations. After formaldehyd made its appearance, it was simultaneously present with hexamethylenamin in all of the freshly voided specimens of each animal.

In patients, free formaldehyd was present in practically all (98.9 per cent) of the urines which were truly acid, that is, with  $(\overset{+}{\text{H}})$  concentrations greater than 7.0. Formaldehyd was absent in the majority of (98.1 per cent) of urines which were truly alkaline, that is, those possessing  $(\overset{+}{\text{H}})$  concentrations less than 7.0. Certain of the tests were recorded as doubtful. This may be due to a high dilution of the urines or to an insufficient amount of hexamethylenamin. In general, the intensity of the formaldehyd reaction was directly proportional to the  $(\overset{+}{\text{H}})$  concentration of the urine, that is, the higher the acidity the more intense the red color, and the lower the acidity the less intense the color, so that often times traces only could be detected. The individual pro-

tocols showed that hexamethylenamin was present in all of the fractional specimens voided.

The demonstration of free formaldehyd in the freshly voided urine, and even in the urine from the pelvis and ureters of the kidney in the dog experiments, shows that liberation must occur within the kidney and that formaldehyd effect must begin somewhere in the tubules. It is, therefore, possible for antiseptic action to occur at least in the pelvis of the kidney.

*Standing Urines.* Practically identical results were obtained with old urines as with freshly voided specimens. That is, practically all of the urines which were truly acid showed the presence of formaldehyd, while those which were truly alkaline liberated no formaldehyd. Some of these urines stood longer than twenty-four hours. Among these were urines which were truly alkaline ( $\overset{+}{\text{H}}$ ) concentrations less than 7.0), and on standing two to three days they still showed no formaldehyd, although the quantity of hexamethylenamin present was abundant as indicated by the character of the bromin-water precipitate. No formaldehyd therefore could be formed in a bladder containing alkaline urine. It is conceivable, however, that in such cases formaldehyd liberated in the kidney might continue to act for a time in the bladder.

*Cerebrospinal Fluid.* Hexamethylenamin, but no free formaldehyd appeared in the cerebrospinal fluids of dogs. In patients hexamethylenamin appeared in the cerebrospinal fluid about thirty to forty-five minutes after administration. This is practically confirmative of Hald who reported forty-five minutes. No free formaldehyd appeared at any time in any of the fluids examined. The dosage varied from 3.2 grams (50 grains) to 54.5 grams (840 grains). Patient M. V., who had received 20 grains every 2 hours for 51 doses, and whose total dosage amounted to 1,020 grains (66.2 gms.), and whose fluid was obtained on three consecutive days showed no free formaldehyd at any time. At the end of this time there was marked vesical irritation with hematuria and the urine showed a high concentration of formaldehyd.

The ( $\overset{+}{\text{H}}$ ) concentration was not obtainable in all of the fluids on account of their limited supply. Patients S. and E. showed ( $\overset{+}{\text{H}}$ ) concentrations of 7.4 and 7.1, respectively. It is known

that the ( $\overset{+}{H}$ ) concentration of cerebrospinal fluid is about like that of serum. This is confirmed by the fluids of other patients which have been examined by us, that is, the fluid tends to be slightly alkaline or neutral. This is, undoubtedly, the reason why free formaldehyd is not liberated from hexamethylenamin in cerebrospinal fluid. The absence of formaldehyd indicates that there can be no antiseptic action in the spinal canal.

*Bile.* Thirteen specimens of fresh bile from human individuals receiving variable doses of hexamethylenamin showed the presence of the drug but no free formaldehyd. The reaction was usually neutral or slightly alkaline and the figures for hydrogen ion concentration varied from 6.98 to 7.18. Old bile which stood for different periods of time became acid and showed the presence of formaldehyd. This was true in general of all body fluids which stood.

*Other Body Fluids.* Hexamethylenamin appeared in the following fluids of dogs; pleural, pericardial, aqueous and vitreous humors and synovial. In no case could free formaldehyd be detected. Usually not enough of the individual fluids could be obtained for determinations of the ( $\overset{+}{H}$ ) concentrations, but an examination of the fluids of two other healthy dogs showed that they are all neutral (7.0).

The lochia of four parturient women receiving hexamethylenamin showed the presence of the drug but no free formaldehyd.

The stomach washings of a patient receiving hexamethylenamin showed the presence of the drug and free formaldehyd. The hydrogen ion concentration was 4.0.

*Pathological Fluids.* In twelve urines from individuals suffering from acute, chronic and hemorrhagic nephritides, the mean value for the ( $\overset{+}{H}$ ) concentration was about 6.5, and formaldehyd was present at all times together with hexamethylenamin. The average time of appearance of hexamethylenamin was 17 minutes, that is, about the same as normal. Eighteen cerebrospinal fluids obtained from conditions which were represented as follows; cerebrospinal lues, general paresis, diabetes, alcoholic neuritis, neuresthenia, cerebral arteriosclerosis, leprosy, tabes, epilepsy, pneumococcic meningitis, tetanus and chronic gastritis, showed ( $\overset{+}{H}$ ) concentrations from 6.98 to 7.3, i. e., they were

neutral or slightly alkaline; hexamethylenamin was present in all, but no free formaldehyd. Ten specimens of fresh bile from a patient who was ill with typhoid and had received hexamethylenamin for about four months and became subsequently operated for cholelithiasis, showed the presence of hexamethylenamin in all of the specimens and typhoid bacilli at the beginning and end of the experiment; no free formaldehyd was present in any of the freshly collected specimens and the  $(\overset{+}{H})$  concentration ranged from 6.98 to 7.18, that is, the bile was practically neutral or slightly alkaline. No bactericidal action had been exerted by the presence of hexamethylenamin. Bile from another individual gave practically the same results so far as the reaction and formaldehyd liberation are concerned. On standing, some of the specimens became truly acid and showed the presence of free formaldehyd. Two specimens of edema fluid from the extremities showed the presence of hexamethylenamin, but no free formaldehyd, and their  $(\overset{+}{H})$  concentrations were 7.1. In a child with tuberculous pleurisy, hexamethylenamin, but no free formaldehyd was found in the chest fluid and the  $(\overset{+}{H})$  concentration was 7.1. An ascitic fluid showed hexamethylenamin, but no free formaldehyd and the  $(\overset{+}{H})$  concentration was 7.2. In an individual with hemothorax, the chest fluid showed the presence of free hexamethylenamin, but no free formaldehyd; the  $(\overset{+}{H})$  concentration was 7.42. In two individuals with cystitis, the urines contained hexamethylenamin and free formaldehyd, the  $(\overset{+}{H})$  concentration of several specimens ranged from 6.3 to 6.51, that is, the urines were really acid. In another individual with cystitis, whose urine was slightly alkaline ( $(\overset{+}{H})$  concentration (7.08), hexamethylenamin was present but no free formaldehyd. The bloods of four individuals with diabetes taking hexamethylenamin showed the presence of the drug, but no free formaldehyd; in one individual acetone was present in the urine, and the  $(\overset{+}{H})$  concentrations of all the bloods ranged from 7.3 to 7.45.

*Conclusions.* Following the administration of hexamethylenamin, the substance itself can be detected in all of the body fluids. Free formaldehyd does not appear in any of the body fluids which are neutral or truly alkaline. This includes blood,

cerebrospinal, pleural, pericardial and synovial fluids, aqueous and vitreous humors, saliva, bile and some urines. Urines which are truly acid and contain hexamethylenamin practically always contain formaldehyd. Urine is the only body fluid, except gastric juice, which exhibits true acidity, hence, it is here only that liberation of formaldehyd from hexamethylenamin can take place. The same general law applies to pathological fluids.

#### 6. The Rationale of Hexamethylenamin Therapy.

From the foregoing correlation of chemical experiments with bacteriological and clinical data, it is clear that hexamethylenamin acts as an antiseptic only in proportion as it liberates formaldehyd; and that this liberation can only occur when the reaction is truly acid. Free formaldehyd is an efficient bactericide in comparatively high dilutions. Such an efficient concentration, no doubt, can be attained in normally acid urine. It is only in vesico-urinary conditions where we can expect any beneficial therapeutic action after the administration of hexamethylenamin, because urine is the only body fluid whose reaction may be altered, if necessary, to such an extent that liberation of formaldehyd from hexamethylenamin will be facilitated. This is not possible with other body fluids in as much as their neutrality or a slight tendency to alkalinity is rigidly maintained. No beneficial therapeutic responses, therefore, are to be expected in meningeal infections; infections of the cerebrospinal fluid or about the spinal cord, bile or biliary passages; or of the infections of the ear, eye, synovial, pericardial or pleural fluids. On account of the rapid absorption of hexamethylenamin and of the usual alkalinity of the bowel contents, no bactericidal action can be expected in the intestinal canal. It was also shown in our experiments that the administration of monosodium phosphate ( $\text{NaH}_2\text{PO}_4$ ) does not alter the reaction of the fluid from the intestines, and that, the hexamethylenamin present under such conditions passes through the bowel unchanged. However, the administration of the monosodium phosphate increased the true acidity of the urine and the concentration of formaldehyd in such a urine containing hexamethylenamin is markedly increased. Therefore, in the urine an opportunity presents itself to increase the efficiency of hexamethylenamin therapy. This can be accomplished by the administration of the monosodium phosphate until the urine when tested with the phloroglucin reagent gives a reaction for formaldehyd. This test indicates quite closely the

turning point in the reaction of urine. That is, at approximately the point of neutrality or beginning alkalinity, it will no longer give a positive formaldehyd test with a hexamethylenamin urine, but as soon as such a urine begins to be truly acid, it gives a positive test for formaldehyd. A urine which has been previously alkaline, that is, possessing a hydrogen ion concentration of 7.2 can be rendered acid, that is, increased to a hydrogen concentration of 4.85 within approximately five hours after the administration of thirteen grams (200 grains) of the phosphate. If the occurrence of diarrhea is objectionable, the dosage of the phosphate may be reduced.

On the other hand the administration of alkalies, such as sodium bicarbonate ( $\text{NaHCO}_3$ ) or potassium citrate, entirely prevents the benefits of hexamethylenamin; and it is, therefore, irrational to prescribe them together. Our data were obtained largely from normal individuals, but so far as urine is concerned it would perhaps make little or no difference as to the behaviour of hexamethylenamin in urines of various pathological conditions, since it is the reaction which is the essential factor in determining the decomposition. It has been shown by Henderson and Palmer that urines in a great variety of pathological conditions are truly acid; that the tendency in many conditions is to a higher acidity than is normally found in urine of the average normal individual. If anything, such pathological urines would facilitate the liberation of formaldehyd from hexamethylenamin.

Concerning other body fluids, our pathological data indicate that they contained no free formaldehyd. It may, therefore, be contended that no bactericidal action could have been expected. In our observations, the average and maximum acidity were no higher than in the corresponding normal fluids. With urines, it appear that the average acidity is higher in pathological than in normal conditions; but the maximum acidity so far recorded is not higher in pathological cases than the maximum acidity of some normal urines.

### SUMMARY

The phloroglucin test is the most delicate and most useful test for free formaldehyd.

Alkalies prevent, while acids facilitate the liberation of formaldehyd from hexamethylenamin in all body fluids.

The liberation of formaldehyd from hexamethylenamin in pathological fluids obeys the same laws as in other solutions, that

is, it can only occur in acid reaction. Even when 0.5 per cent hexamethylenamin was added to them, not enough formaldehyd was liberated to be bactericidal.

Hexamethylenamin itself is not bactericidal.

Liberation of formaldehyd from hexamethylenamin depends upon the excess hydrogen ion concentration of the solution above the neutral point.

After administration, hexamethylenamin is present, but does not liberate free formaldehyd in bile, blood, cerebrospinal, pleural, pericardial and synovial fluids, vitreous and aqueous humors and urine when truly alkaline. Formaldehyd is liberated in urine which is truly acid. The same is true of corresponding pathological fluids.

Administration of monosodium phosphate with hexamethylenamin renders the urine acid and facilitates the liberation of formaldehyd.

The administration of alkali with hexamethylenamin renders the urine alkaline and inhibits the liberation of formaldehyd.

The beneficial therapeutic effects of hexamethylenamin depend upon the liberated formaldehyd. Such effects are to be expected principally, if not always, in acid urine only. It is irrational to prescribe alkalies (bicarbonate and citrate) together with hexamethylenamin.

\*The literature and the detailed data, except of the most recent observations, discussions and certain topics together with acknowledgements to all those who aided in the work have been omitted in this paper, and may be found by referring to Hanzlik and Collins: *Archives Internal Medicine*, November, 1913, Vol. XII, p. 578.

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**A Deserved Honor.**—The announcement of the call of Colonel Gorgas to South Africa to aid in determining the best method of handling epidemic disease among the workers in the mining district is a fitting recognition of the magnificent work which he has conducted in Panama. The contrast of the present sanitary conditions in the Canal Zone with those under French rule, under which every tie in the line of the Panama railway was said to represent a human life, is sufficient to account for the new honor which has come to Colonel Gorgas. In view of his previous record we have no doubt of further success in this new undertaking.—*J. A. M. A.*



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Organized January 20, 1902

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## EDITORIAL

### THE LEGISLATIVE CONTROL OF DRUG HABITS

On taking over the government of the Philippines our government was impressed with the disastrous effects of opium smoking on the natives who had fallen victims to the habit through association with the Chinese of the islands. The habit had be-

come so widespread that whole communities were becoming demoralized. Recognizing the imminent moral and economic dangers, Congress prohibited the importation of opium except for medicinal purposes. This at once aroused the interest of the Chinese rulers who had been unsuccessfully combatting the opium evil for more than a century.

In 1906, an imperial decree prohibited the "consumption of the drug and the cultivation of the poppy" within a period of ten years. Such a decree would probably have been futile without the co-operation of other nations, since China had ever been unable to prevent the introduction of opium from nearby states. On the request of missionary and commercial societies our government called an International Opium Congress to study the opium traffic question. Those countries with interest in the East were represented in the convention in the Philippines in 1909. Among the resolutions of that body of paramount importance was the recommendation that each state "adopt reasonable measures to prevent at ports of departure the shipment of opium to any countries which prohibit the entry of opium." All governments concurred in offering their earnest support by checking the use of opium in their Chinese possessions so that now China is well on the road to abolish the opium evil within the period of 10 years set by the imperial decree. It is said that not a single opium dive can be found in Shanghai.

In the United States opium and other drug habits, notably cocain, have been increasing in an alarming manner. In the past fifty years the importation of opium has increased nearly three times as rapidly as the population. At present importation of opium except for medicinal purposes is prohibited, but the manufacture of smoking opium from the imported opium is not prohibited, although taxed, not excessively, however. Much more menacing in this country than opium smoking is the habitual use of opium preparations and alkaloids. A number of states have enacted laws designed to regulate the sale and use of cocain and narcotics, but practically all of these laws are nullified by the absence of federal restrictions on interstate traffic. Fortunately several bills to regulate interstate traffic in narcotic drugs and the importation of opium and the manufacture of smoking opium are now in the hands of the Senate Committee on Finance, having already been passed by the House.

We note with gratification a recent enactment in the Ohio State Pharmacy Laws. The law reads essentially as follows:—Cocain and opium, including their various preparations and alkaloids, can be furnished by a pharmacist only on the *written prescription* of a qualified person; such prescription must not be re-filled; punishment by a fine for the first offense plus imprisonment for the second.

The revision is along two lines (a) more specific mention of the drugs and their preparations (with the addition of chloral hydrate) and broadly covering all substitutes and (b) more adequate punishment for infraction of the law.

Most striking is the addition of the following phrases to the list of enumerated drugs “or *any synthetic equivalent thereof either as to physical properties or physiological action.*” This phrase is subject to a very liberal interpretation which is left to the discretion of the court. Evidently the framers of the law had clearly in mind the acumen of those intent on evading the spirit of the law purely for commercial reasons. It is said that nothing is easier to make than laws, implying their ready evasion. It is scarcely conceivable that any product of the included drugs can be made, which will satisfy the craving of the unfortunate victim, and still not have any of their physical or physiological properties.

The law is broadened to provide, at the court’s discretion, a jail imprisonment of one to six months for the *first* offense. Confinement in prison would seem to be much more effective against violation of the law than merely a monetary fine.

These revisions constitute a long step in advance in checking the rapidly increasing numbers of drug habitues and, if properly enforced, would mean that every habitue, as he will be unable to obtain his drug, must present himself for medical treatment, were it not for the very unfortunate proviso pertaining to these drugs in liquid preparations. (The point in question is italicized by the editor in the foot note.) There can seem to be no reason for permitting the dispensing of opium or cocain in dilute preparations by manufacturers without a qualified prescription; mere dilution in no appreciable way interferes with the action of the drugs, although it may make them more expensive. The proviso is quite

unnecessary and may go a long way toward nullifying the salient revisions in the law. U. D. P.

NOTE—Reprint of Section 12672 and 12672-1 of Laws Relating to Sale of Cocaine and Other Substances and Penalties For Illegal Sale.

## LAWS RELATING TO SALE OF COCAINE AND OTHER SUBSTANCES AND PENALTIES FOR ILLEGAL SALE.

SECTION 12672. Whoever sells, barter, furnishes or gives away, directly or indirectly, or has in his possession for the purpose of selling, bartering, furnishing or giving away, directly or indirectly, any quantity of cocaine, alpha or beta eucaïne or alypin, morphine, acetyl-morphine, di-acetyl-morphine, di-acetyl-ester-morphine, ethyl-morphine, heroin, chloral hydrate, opium, or any of the alkaloids, salts, derivatives or compounds, *or any synthetic equivalent thereof either as to the physical properties or physiological action*, except upon the original written prescription of a physician, dentist, or veterinary surgeon duly licensed under the laws of this state, when prescribing for their patients for actual and necessary purposes in the proper practice of their respective professions, which prescription shall contain the name of the physician, dentist or veterinary surgeon issuing it, the date of issue and the name of the person for whom it is issued; or fails to keep such prescription on file for at least two years, in such manner that it is accessible at all reasonable times to the inspection of the proper officer or officers of the law and the agricultural commission, or fills said prescription more than once, shall be fined not less than twenty-five dollars, nor more than five hundred dollars, or imprisoned in the county jail not less than thirty days or more than six months, or both, at the discretion of the court, for the first offense, and for each subsequent offense shall be imprisoned not less than one year or more than five years in the penitentiary. If it be made to appear to the court that the person so convicted is addicted to the use of any of the above mentioned drugs or substances, the court, with the consent of such person may commit such person to a hospital or other institution for the treatment of such person. This section does not extend to sales at wholesale of any quantity of the above mentioned drugs to duly registered pharmacists, physicians, dentists or veterinary surgeons; *and shall not apply to liquid preparations sold in good faith as medicines containing not more than two grains of opium, or not more than one-fourth grain of morphine, or not more than one-fourth grain of heroin, or not more than one-eighth grain of alpha or beta eucaïne, or not more than ten grains of chloral hydrate in one fluid ounce, or if a solid preparation, in one avoirdupois ounce.*

SECTION 12672-1. The finding in the possession of a person who is not a wholesale dealer in drugs, a registered pharmacist, physician, dentist or veterinary surgeon, of any quantity of cocaine, alpha or beta eucaïne or alypin, morphine, acetyl-morphine, di-acetyl-morphine, di-acetyl-ester-morphine, ethyl-morphine, heroin, chloral hydrate, opium, or any of their alkaloids, salts, derivatives or compounds, or any synthetic equivalents thereof either as to the physical properties or physiological action, shall be prima facie evidence of the violation by such person of section 12672 of this chapter. (103 v. 505-506.)

SECTION 12673. It shall be the duty of the agricultural commission to enforce the provisions of section twelve thousand six hundred and

seventy-two, and all fines collected under section twelve thousand six hundred and seventy-two shall be paid to the agricultural commission, and by it covered into the state treasury. (103 v. 340.)

**UNITED STATES CIVIL SERVICE EXAMINATION**

**Anatomist (Male). January 7, 1914.**—The United States Civil Service Commission announces an open competitive examination for anatomist, for men only, on January 7, 1914, at the places mentioned in the list printed hereon. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position at \$1,600 a year, in the Army Medical Museum, Office of the Surgeon General, and vacancies requiring similar qualifications as they may occur, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

Competitors will be examined in the following subject, which will have the relative weights indicated:

Subjects.	Weights.
1. Normal histology and physiology.....	20
2. Pathologic histology.....	20
3. Gross pathology (including preparation of museum specimens).....	20
4. Bacteriology (including care and use of microscope).....	20
5. Photomicrography.....	5
6. Training and experience.....	15
Total .....	100

Applicants must have reached their twentieth but not their thirty-fifth birthday on the date of the examination.

Men only will be admitted to this examination.

It is desired that the person appointed to this position shall be young, in good health, a graduate in medicine, have a thorough knowledge of pathologic histology, pathology, and bacteriology, be capable of making photomicrographs, understand microscopes, surgical instruments and appliances, and be able to prepare, card, and keep in order museum specimens.

Statements as to training and experience are accepted subject to verification.

In accordance with a recent act of Congress, an applicant for this examination will be required to be examined in the State or Territory in which he resides and to show in his application that he has been actually domiciled in such State or Territory for at least one year previous to the date of the examination.

This examination is open to all male citizens of the United States who meet the requirements.

This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.

Persons who meet the requirements and desire this examination should at once apply to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners, at any place mentioned in the list, for application Form 1312. No application will be accepted unless properly executed, including the medical certificate, and filed with the Commission at Washington in time to arrange for the examination at the place selected by the applicant. In applying for this examination the exact title as given at the head of this announcement should be used. Application blanks, for those wishing to take this examination in Cleveland, may be obtained from the local secretary of the United States Civil Service Board, Cleveland Custom house.

## DEPARTMENT OF THERAPEUTICS

Conducted by J. B. McGEE, M. D., Cleveland

**Heart Block:** The *New York Medical Journal* for Nov. 15th considers the treatment of heart block, and the Stokes-Adams syndrome. Heart block, we may recall, is due to interference with the transmission of contractile impulses from the auricles to the ventricles. Among the causes which have been recorded, rheumatic affections of the heart, infectious diseases which tend to poison the myocardium, acute lobar pneumonia, typhoid fever, influenza, diphtheria, atheronia of the bundle of His, gumma or ulceration of this structure and streptococcus endocarditis, occupy a prominent place. Of great clinical importance however, in view of the freedom with which digitalis is used in practice, and the large doses that some internists advocate, is that this agent is a prolific cause of heart block. This emphasizes, besides the need of care and watchfulness in the use of digitalis, the importance of establishing clearly whether true heart block is present in a given case, or whether the patient is suffering in addition from the phenomena which make up the Stokes-Adams syndrome, for which digitalis is useless, and may prove harmful in the former disorder, it is sometimes of great benefit in the latter. A clinical distinction between the two conditions in point thus becomes necessary. While both possess the slow pulse, we should recognize with Lewis that heart block and the Stokes-Adams syndrome are not synonymous terms—as taught in some text books—the main distinctive feature of the latter being epileptoid attacks. In simple heart block, then, we should avoid digitalis and place our confidence in atropin, which is often effective in counteracting the block by paralyzing the vagal terminals. Where syphilis is suspected as a cause, mercury or the iodides, should be tried, the policy later in rheumatic cases, the iodides when arteriosclerosis prevails, etc. Over exertion and violent emotion are very dangerous in such cases. In the Stokes-Adams syndrome, the myocardium seems on the other hand to demand additional tone. This is best met, in addition to the treatment of the original cause, by means of strychnin. In some cases, particularly where there is dilatation, digitalis in moderate doses, or a good fluid extract of cactus grandiflorus in thirty drop doses as advised by Wilcox, is to be preferred. Sodium citrate and sodium iodide have been found beneficial by some observers. Hypodermoclysis and the intravenous use of saline solution—without epinephrin—suggest themselves as valuable aids.

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**Diphtheria:** The *Therapeutic Gazette* in the November number, calls attention to the need of large doses of diphtheria antitoxin. The experience of clinicians all over the world, involving many thousands of cases, reveals the fact that the doses of diphtheria antitoxin which were first administered, and which are often used at the present time, are quite inadequate to produce the effects which are desired. It is becoming more and more evident that the initial dose should never be less than 10,000 units, even when the patient is seen in the early stage of the disease, and if there is any considerable amount of membrane, or the epidemic is known to be a virulent one, it is probably better to employ not less than 25,000 units within the first eight hours, repeating the antitoxin with doses of 5,000 units every eight hours until the patient is on the high road to recovery. Since it is to be borne in mind that antitoxin is not a drug but an antidote, and it is far better to give too much than too little. Doctor Hare has frequently discussed in leading articles the subject of antitoxin and anaphylaxis. There can be no doubt that in the guinea-pig anaphylaxis is readily induced, and guinea-pig experiments, fortified by a very few instances of fatal anaphylaxis in man has possibly made some physicians timid in the use of

antitoxin, particularly when the patient has been sensitized by an earlier dose given more than ten days before. When it is considered, however, that in New York, 100,000 patients have received immunizing doses, and that there has only been one death following an injection of 1,000 units, and that this death occurred in a child suffering from status lymphaticus, it is evident that in human beings the danger of anaphylaxis is too remote to be considered, the more so as in 40,000 cases of diphtheria, which received more than 100,000 doses of antitoxin there was not a dangerous symptom attributable to the antidote. It is probably true that asthmatics, hay fever patients, and children suffering from status lymphaticus are more prone to suffer from ill effects than other individuals. In such cases it is worthy of note that some protection may be given the patient who needs antitoxin by a preliminary injection of atropin, or by mild ether anesthesia.

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**Hexamethylenamin:** In the November number of the *Archives of Internal Medicine*, Paul J. Hanzlik and R. J. Collins report upon hexamethylenamin, the liberation of formaldehyd and the antiseptic efficiency under different chemical and biological conditions. They state that the drug has been recommended as an antiseptic agent for practically all of the body fluids, largely on the basis of the fact that after internal administration, it has been found present everywhere in the body. Although it has been quite generally recognized that it is practically non-toxic, the criteria for its action as an antiseptic, have only comparatively recently begun to be appreciated. Its decomposition into ammonia and formaldehyd is well known and it is generally believed by pharmacologists, that its bactericidal properties are due to the liberated formaldehyd. However, there has been no absolute proof that free hexamethylenamin may not prevent bacterial growth. Indeed it is maintained by some clinicians that it is bactericidal, and that the presence of free formaldehyd is not necessary when it is to be used as an antiseptic. Their summary is: 1—The phloroglucin test is the most delicate and most useful test for free formaldehyd. 2—Alkalies prevent, while acids facilitate the liberation of formaldehyd from hexamethylenamin in all body fluids. 3—The liberation of formaldehyd from hexamethylenamin in pathological fluids obeys the same laws as in other solutions: that is, it can only occur in acid reaction. Even when 0.5 per cent hexamethylenamin was added to them, not enough formaldehyd was liberated to be bactericidal. 4—Hexamethylenamin itself is not bactericidal. 5—Liberation of formaldehyd from hexamethylenamin depends on the excess hydrogen ion concentration of the solution above the neutral point. 5—Previous investigations leave us in doubt as to the behavior of hexamethylenamin in the body. 6—After administration hexamethylenamin is present, but does not liberate free formaldehyd in blood, cerebrospinal, pleural, pericardial, and synovial fluids, vitreous and aqueous humors and urine when truly alkaline. Formaldehyd is liberated in urine which is truly acid, and in the acid gastric contents. 7—Administration of mono sodium phosphate with hexamethylenamin renders the urine acid, and facilitates the liberation of formaldehyd. 8—The administration of alkali with the hexamethylenamin renders the urine alkaline and inhibits the liberation of formaldehyd. 9—The beneficial therapeutic effects of hexamethylenamin depend on the liberated formaldehyd. Such effects are to be expected principally if not always, in acid urine only. It is irrational to prescribe alkalies (bicarbonate and citrate) together with hexamethylenamin.

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**Skin Diseases:** In the *Medical Record* for Nov. 22, L. Duncan Bulkley presents some indications from the urine in the treatment of certain diseases of the skin. The urine is the most perfect exponent of the catabolism and anabolism of the system, and too much

stress cannot be laid upon the importance of its repeated and complete volumetric analysis in connection with the treatment of very many cases of diseases of the skin. In general medicine the relation between the skin and the excretion from the kidneys is a matter of every day observation and consideration. But we have been slow to recognize the relation of deficient or deranged kidney excretion to the integrity of the skin and its functions, although occasionally very strong evidence of this has been adduced by individual observers. Excessive urinary acidity is frequently observed in connection with many diseases of the skin, *eczema lichen planus*, *psoriasis acne* and others, and eruptions will often be seen to be red and congested, and itching increased when there is high acidity of the urine, and to be relieved, when this is reduced by appropriate treatment for the abnormal acidity of the urine, but reflects a lessened alkalinity of the blood circulating through the skin. On the other hand a greatly reduced acidity of the urine, or persistent alkalinity, not dependent on bladder trouble, may be quite as harmful; and he recalls a case of urticaria, which proved rebellious until on analysis of the urine he found it to be .063, almost neutral, when the eruption was arrested promptly on the free administration of urotropin, bringing the acidity of the urine up to normal. He calls attention to the presence and influence of urea, uric acid, indican, etc., and as to the phosphates, states, that continued increased elimination will often indicate a waste of nervous tissue which may be of the utmost importance in some dermatoses, while with a prolonged greatly diminished excretion we have a failure of nutritive powers which is of equal importance in other skin affections. He mentions a number of more or less acute and some chronic cutaneous affections in regard to which functional disturbances in the kidney excretion have been observed to be of significance. The notorious rebelliousness and proneness to recur of many affections of the skin, should lead dermatologists to look away from a purely local etiology, and with a broader view of medicine, seek for the underlying causes, which as in disease of other organs, are often found to depend on a defective metabolism, which is commonly indicated by defective or deranged urinary secretion.

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**Hydrastinin:** The December number of the *American Journal of Clinical Medicine* states editorially that golden-seal is a great favorite with the physicians of Germany, more particularly in gynecologic practice, but when prescribed in the form of the fluid extract, the women patients "hate" it for its "horrid" taste, and so it is that hydrastinin—now made more available since being produced synthetically—is hailed as a deliverance from evil: this the more so, in that it can be used hypodermically. As long ago as 1892 Doctor H. Walther began to experiment in the clinics at Giessen, with hydrastinin as a substitute, but at that time the price was prohibitive. Now, however, he has taken up the problem again, and after a year's extensive trial reports his results, with those of other investigators in the April 1st issue of the *Muench. Med. Wochenschrift*. He affirms that in its action on the uterine musculature as a hemostatic hydrastinin exactly parallels that of the fluid extract, minus the objection of bad taste, uncertain composition, and the pressure of the cardio toxic hydrastinin in addition to supplying a hypodermic agent. He predicts the early displacement of the extract. He points out that the cases must be properly selected, and when the drug seems to have failed, it is because of surgical reasons, such as the presence of neoplasms, or easily bleeding erosions, where the best of hemostatics cannot avail. Hydrastinin should be used when a direct contractive action upon the arteries of the walls of the womb is required, and when there are no gross lesions, and no new growths, as in such cases, failures may be looked for uniformly. It is especially valuable in the menorrhagias, the remedy being taken prophylactically before the menstrual period, twice daily in small dosage, up to the period, and in larger amount three times daily during menstruation. The period of bleeding is shortened, while



tendency to clot formation is overcome. He has also used it subcutaneously in some 30 cases, especially after operations as curetment, etc. No local irritation was ever observed. By the mouth Walther's dose ranged from three-fourths of a grain to three grains, sometimes even four grains twice a day. In America smaller doses are given, 1/6 to 1/4 grain repeated at half hour to one hour intervals usually eliciting the desired action. He has not dared to give the drug to pregnant women, fearing a certain degree of contractile influence on the uterus. He closes with unreserved commendation of the remedy, calling it an important addition to our remedial measures.

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**Delirium Tremens:** S. P. Kramer, in *Merck's Archives* for November, (*Boston Med. and Surg. Journal*), states that he has obtained excellent results with subdural injections of sodium bromide in the treatment of delirium tremens. Pathologically, delirium tremens presents a classic picture of cerebral edema. The amount of cerebrospinal fluid is increased to such an extent that one can readily withdraw through lumbar puncture 50 to 60 c. c. This fluid is exceedingly toxic, and its injection into dogs brings on a rapid fall in blood pressure. It has been known that in delirium tremens, the withdrawal of cerebrospinal fluid produces a temporary improvement. The author sought for a medication which might be directly introduced into the subarachnoid cavity after withdrawal of the toxic fluid, and which would counteract the edema, and act as a sedative. He found that a sterile one per cent solution of sodium bromide might be injected into the spinal canal of animals without immediate or remote harm to the nervous system. He then tried the treatment in a series of twenty cases of delirium tremens. The technique of the treatment consists in the withdrawal of the cerebrospinal fluid through lumbar puncture in amounts as great as possible, namely 50 to 60 c. c. The same amount of a sterile one per cent solution of sodium bromide is then injected, with a syringe. He states that there is absolutely no danger from increased subdural pressure. This amount and even as high as 80 c. c. of fluid have been injected into the subdural cavity in an interval of one minute without the least sign of intracranial pressure. Sodium bromide is not toxic to the nervous system, the potassium salt should not be used as it is slightly irritating. The patients as a rule, show an immediate improvement, a lessened delirium within a few minutes after the injection. This improvement, however, disappears after a short time, to be followed in from 12 to 15 hours, by a permanent disappearance of the delirium. Occasionally after a few days, there may be a relapse, which is usually controlled by a repetition of the injection.

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**Metallic Poisons:** In the *American Journal of the Medical Sciences* for December, George A. Moleen treats of metallic poisons and the nervous system, lead, arsenic and mercury being considered. In the treatment, iodides are used because of the effect in increasing the solubility in the blood, but a new danger arises, as was pointed out by Gowers, who cautions against the too free use of iodine since the influence upon nerve structures is largely through the blood, and the throwing of a large quantity of the metal suddenly into the circulation, may aggravate the symptoms. Magnesium sulphate has long been known as a favorite eliminant. Calcium permanganate (1/4 gr. t. i. d.) is recorded to be of value by Stephens. A curious procedure is the fixation abscess, which resulted in marked improvements induced, by V. Hinze by subcutaneous injections of turpentine, 1 c. c. and 0.089 per cent metallic lead recovered from the abscess in 1.528 grams of pus. The same precaution regarding the free use of iodides obtains in the treatment of chronic arsenical intoxication as with lead. His conclusions are that: (1) a wide variation exists in individual susceptibility to all metallic poisons. (2) In those susceptible, if the nervous system is attacked, the

peripheral nervous system is the most vulnerable, and more especially, the extensor supplies. (3) There is with lead poisoning in all probability an early lymphocytosis of the cerebrospinal fluid and probably coincident with, or succeeding upon, the basophilic granulation of the red blood cells. (4) Non-inflammatory degenerations of any portion of the peripheral system should suggest the metals as a possible cause. (5) In the absence of skin evidences of arsenic and the blue line of lead, the urine, the blood, and finally artificial abscesses, may be induced, and examined for the metals. This procedure should, it would seem, lend itself as a diagnostic as well as therapeutic agent. (6) A positive Wassermann reaction would not seem to exclude especially lead, in favor of syphilis, in primary nerve or tract degenerations. (7) The source of the poison may not be detectable until long after the presence of the metal as a cause has been established.

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**Crotalin:** Thomas J. Mays in the December number of the *Medical Council* writes concerning the proper dosage of crotalin in epilepsy. He states that the irrational theory which has been spread broadcast that crotalin wields its therapeutic influence in epilepsy by lowering the coagulability of the blood, has done incalculable harm to confidence in a very useful drug. The use of crotalin efficiently in the treatment of epilepsy is dependent upon more than pumping the patient full of its solution and taking the swelling and local reaction at the seat of injection as determining its constitutional effect. This means is merely a blind guess and bears no relationship to its therapeutics in this disease. Crotalin is a two-edged sword, and its usefulness in epilepsy is dependent upon minimum or moderate dosage; maximum doses are detrimental. This is not idle conjecture, but is something which is patent to every thoughtful observer who has had experience with this drug in the treatment of epilepsy. From his observation, based on a large number of epileptics, it seems that patients of this kind are rather susceptible to the action of crotalin. It is certain, that as a rule, they are less tolerant of it than are consumptives or asthmatics. It is also true that some epileptics tolerate larger doses than do others, even at the beginning of treatment. Thus patients with *petit mal* seizures, or those who have *petit mal* and *grand mal* seizures especially if the former type predominates, are more impressible to it than are those who suffer from the *grand mal* seizures alone. Therefore, the proper dose of crotalin in epilepsy is more or less of a variable quantity. In his earlier experience he had a number of cases in which large doses undoubtedly increased the number of seizures, and which were subsequently alleviated by giving smaller ones. It is always in order to begin with smaller doses in the *petit mal* than in the *grand mal* seizures. What is the general average dose of crotalin given hypodermically? This may be stated to be five minims of the solution or 1/100 grain. But always begin with one or two minims 1/500 grain, or 1/250 grain (or half a minim grain 1/1000 in children or in very irritable *petit mal* cases), every fourth or fifth day and slowly increase to four or five minims, in the course of six weeks or two months. The dose may be increased to 1/50 grain or even more in some cases. After the attacks subside, give a dose once a week. In giving it, if the seizures diminish in number and severity, the dose is a proper one. If they are aggravated, the dose must be diminished unless their intensification is due to other causes.

## NEW AND NON-OFFICIAL REMEDIES

Since publication of New and Nonofficial Remedies, 1913, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

**Agglutinating Sera for Diagnostic Purposes.**—These are the sera of animals (horses) immunized against various bacteria. For use a solution is added to a suspension of the bacterium to be tested, and after incubation for a certain period the mixture is examined.

**Agglutinating Serum for the Identification of Bacillus Paratyphosus A.**—Intended for use by the macroscopic method. H. K. Mulford Co., Philadelphia, Pa.

**Agglutinating Serum for the Identification of Bacillus Paratyphosus B.**—Intended for use by the macroscopic method. H. K. Mulford Co., Philadelphia, Pa.

**Agglutinating serum for the Identification of Bacillus Typhosus.**—Intended for use by the macroscopic method. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., Nov. 1, 1913, P. 1630).

**Antistreptococcic Vaccine (Scarlatina Prophylactic).**—For description of Streptococcus Vaccine see N. N. R., 1913, P. 226. The Abbott Alkaloidal Co., Chicago.

**Strepto-Bacterin (Scarlatina Bacterin) Polyvalent.**—For description of Streptococcus Vaccine see N. N. R., 1913, P. 226. The Abbott Alkaloidal Co., Chicago. (Jour. A. M. A. Nov. 15, 1913, P. 1811).

**Silk Peptone "Hoechst".**—Peptone made from silk and standardized to a uniform rotatory power. It is used for the detection of peptolytic ferments, either by changes in optical activity or by the precipitation of tyrosin produced by its digestion. Farbwerke Hoechst. Co., New York (Jour. A. M. A. Nov. 15, 1913, P. 1811).

**Acne-Bacterin Polyvalent.**—For description of Acne Vaccine see N. N. R., 1913, P. 221. Abbott Alkaloidal Co., Chicago.

**Coli-Bacterin Polyvalent.**—For description of Bacillus Coli Vaccine see N. N. R., 1913, P. 221. Abbott Alkaloidal Co., Chicago.

**Friedlander Bacterin Polyvalent.**—For description of Friedlander Vaccine see N. N. R., 1913, P. 222. Abbott Alkaloidal Co., Chicago.

**Gonococcus-Bacterin Polyvalent.**—For description of Gonococcus Vaccine see N. N. R., 1913, P. 223. Abbott Alkaloidal Co., Chicago.

**Pneumo-Bacterin Polyvalent.**—For description of Pneumococcus Vaccine see N. N. R., 1913, P. 224. Abbott Alkaloidal Co., Chicago.

**Staphylo-Acne-Bacterin Polyvalent.**—For description of mixed vaccines see N. N. R., 1913, P. 224. Abbott Alkaloidal Co., Chicago.

**Staphylo-Albus-Bacterin Polyvalent.**—Abbott Alkaloidal Co., Chicago.

**Staphylo-Aureus-Bacterin Polyvalent.**—Abbott Alkaloidal Co., Chicago.

**Staphylo-Bacterins (Human) Albus-Aureus-Citeus.**—For description of Staphylococcus Vaccines see N. N. R., 1913, P. 225. Abbott Alkaloidal Co., Chicago.

**Strepto-Bacterin (Scarlatina Bacterin) Polyvalent.**—Abbott Alkaloidal Co., Chicago.

**Antistreptococcic Vaccine (Scarlatina Prophylactic).**—Abbott Alkaloidal Co., Chicago.

**Strepto-Bacterin (Human) Polyvalent.**—For description of Streptococcus Vaccines see N. N. R., 1913, P. 226. Abbott Alkaloidal Co., Chicago.

**Typho-Bacterin Polyvalent.**—Abbott Alkaloidal Co., Chicago.

**Typhoid Prophylactic.**—For description of Typhoid Vaccine see N. N. R., 1913, P. 227. Abbott Alkaloidal Co., Chicago, (Jour. A. M. A., Nov. 22, 1913, P. 1900).

**Arheol.**—Arheol is santalol, the chief constituent of sandalwood. Its action is the same as that of sandalwood oil, but is claimed not to cause disturbance of the stomach or the kidneys. Arheol is marketed only in the form of Arheol Capsules, 0.2 Gm. Alexandre Astier, Paris, France (Jour. A. M. A., Nov. 22, 1913, P. 1900).

Since Nov. 1, the following articles have been accepted for inclusion with New and Nonofficial Remedies:

Abbott Alkaloidal Co.:

Digipoten Tablets.

Digipoten.

Slee's Tetanus Antitoxin.

Slee's Antimenigitis Serum.

Slee's Antistreptococcic Serum.

Slee's Normal Horse Serum.

P. Astier.:

Arheol.

Fairchild Bros. & Foster:

Fairchild Culture of the Bacillus Bulgaricus.

Greeley Laboratories:

Bordet-Gengou Bacillus Vaccine for Whooping Cough Therapy.

Bordet-Gengou Bacillus Vaccine for Whooping Cough Prophylaxis.

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**Examination of Candidates for Assistant Surgeon, Treasury Department, United States Public Health Service.**—Boards of Commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, S. E., Washington, D. C., and at the Marine Hospitals of Boston, Mass., Chicago, Ill., St. Louis, Mo., New Orleans, La., and San Francisco, Cal., on Monday, January 12, 1914, at 10 o'clock a. m. for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two year's professional work.

Candidates must be not less than 5 feet, 4 inches, nor more than 6 feet, 2 inches, in height.

The following is the usual order of the examination: 1, Physical; 2, Oral; 3, Written; 4, Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and that they will serve wherever assigned to duty.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists of examination in the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital.

The examination usually covers a period of about ten days.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments.

After four year's service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Assistant surgeons receive \$2,000, passed assistant surgeons \$2,400, surgeons \$3,000, senior surgeons \$3,500, and assistant surgeon generals \$4,000 a year. When quarters are not provided, commutation at the rate of \$30, \$40, and \$50 a month, according to the grade, is allowed.

All grades receive longevity pay, 10 per cent in addition to the regular salary for every five years' service up to 40 per cent after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."

## The Academy of Medicine of Cleveland

### ACADEMY MEETING

The one hundred and fourth regular meeting of the Academy was held, Friday evening, November 21, 1913, at the Cleveland Medical Library with the President, H. L. Sanford, in the chair.

The program follows:

#### 1. The Roentgen Diagnosis of Lesions in the Region of the Mediastinum, by George F. Thomas.

The prominent symptoms of disease in the regions of the mediastinum are those produced by pressure. A competent X-Ray examination is often of great aid in those cases where the physical and laboratory findings are not conclusive of mediastinal disease. The X-Ray examination must be thorough, and, if necessary, must include the use of the fluoroscope, and the making of instantaneous screen plates. The shadows of the heart, the aorta, the trachea, and the superior mediastinal space should be observed. Variations from normal are due to a disturbance of the intra-thoracic tension of the two sides, or to a disturbance of the normal equilibrium between the intra-thoracic tension and the intra-abdominal pressure—to conditions within or without the mediastinum. Causes of this disturbance may be, excess of intra-abdominal fat; tumors; fluid within or without the gastro-intestinal tract; general visceroptosis; pleural effusions; adhesions; compensatory emphysema; pneumothorax; and lung tumors. The heart assumes a tranverse position in cases where there is a dilatation of the aorta, and, in the absence of other demonstrable causes, a downward rotation of the base of the heart is evidence of a lengthening of the aorta, the result of aortitis. Not only does the X-Ray show the size and shape of the heart, which helps in the diagnosis of valvular lesions, but with the fluoroscope, its pulsations can be made out, and this often helps in the differential diagnosis between a pericardial effusion and a simple enlargement of the heart. In chronic pericarditis this is not so clear, because of the pericardial thickening and the density of the exudate; but the evidence of adhesions and inflammatory thickenings in the surrounding tissues should clear up the diagnosis.

In aortitis, we may find either, a transverse heart with widened aortic shadow; or a transverse heart without widened aortic shadow; or a tortuous aorta (due to lengthening) but without broadening of the aorta or displacement of the base of the heart downward.

The differential diagnosis between aneurism, mediastinal tumor, and a pulsating mediastinal abscess, when impossible from the clinical history and the laboratory findings, may be greatly helped by the X-Ray. As a rule the shadow of the aorta can be seen through the tumor mass; if not, one can depend upon the character of the outlines and the cardiac displacement, and the fluoroscopic observations regarding pulsations. An irregular hazy outline, a downward displacement of the heart, rather than a rotation of the base downward, and the presence of a pleural effusion indicate mediastinal tumor. The bismuth-esophagus, will show the presence of a primary esophageal carcinoma. The mere determination of the size of the mass, when considered in conjunction with the symptoms, may eliminate the probability of aneurism; for it is possible to have a relatively large tumor mass without prominent symptoms, while this can rarely be said of aneurisms. Sarcoma of the mediastinum is usually differentiated from enlarged glands, by difference in density, irregular involvement of adjacent tissues, in the finding of a pleural effusion, or the presence of undefined shadows of metastatic deposits in the lung. Small nodules of calcified tuberculosis may be indicated in the posterior mediastinum and these without other evidence of pulmonary involvement. Syphilis may

be diagnosed from the excessive density of the hilus and tissues, associated with aortic lengthening and dilatation. In Hodgkin's disease the involved glands are apt to be large and discrete.

Substernal thyroid is suggested by a marked broadening of the superior mediastinal shadow, when the latter has clearly defined edges with a misplaced tracheal shadow. The fluoroscope will differentiate the tumor mass shadow from that of the aorta.

The lesions of the esophagus in which the X-Ray is of value in diagnosis are, stricture by outside pressure, or by primary esophageal growth or from a non malignant growth e. g. ulcer; or in esophageal spasm or cardio spasm, or in diverticula.

A correlation of the anamnesis, the physical and laboratory findings, and the X-Ray examination is the proper method of procedure to detect or eliminate the presence of intra-thoracic pathological processes.

(Doctor Thomas' paper will be published in full in a later issue of the journal.)

## 2. Some X-Ray Observations on Stomach and Duodenum, by Sidney Lange, Cincinnati, Ohio.

In the application of the X-Ray as an aid to diagnosis of lesions of the stomach and duodenum, it is necessary to have a thorough knowledge of the organs and to be familiar with the pictures of all phases of their normal activity. A careful study of the bismuth-stomach is most instructive in clearing up the questions concerning its physiological activity. This has shown that the normal stomach is no larger than is necessary to accommodate its contents. The order and sequence of its peristaltic waves are shown by a series of plates made in close succession. The application of this data to the pathological stomach clearly shows in what way the diseased organ varies from normal; whether it is atonic; whether it empties promptly; and indicates, in many cases, the cause of its disturbed activity. A diagnosis should not be made on a single radiograph; several exposures should be made, each serving as a check upon the others. The fluoroscope will often show plainly what the plate shows indistinctly or not at all, and should be used in all cases where there is doubt as to the significance of the shadow on the plate. By its use it is possible to detect the presence of ulcers and insipient malignant growths; these important lesions are rarely indicated on the plate. Conditions suspected but unable to be demonstrated by clinical methods can, in the majority of cases, be diagnosed by the X-ray and the latter should be used as a diagnostic aid whenever there is clinical evidence of a lesion of the stomach or duodenum.

W. C. Hill in opening the discussion said that he was glad that Doctor Lange had emphasized the importance of repeated radiographs of any lesion before a definite diagnosis is made. It is interesting to know that he employs the fluoroscope screen. The Germans rely almost entirely on the fluoroscope, whereas the Americans are using it in conjunction with plates. Doctor Lange's work is so complete and convincing that there is nothing to be added.

F. C. Herrick raised the question as to whether or not Doctor Lange had been able to diagnose carcinoma and ulcers sufficiently early for operation?

M. J. Lichty said that the X-Ray man is considered the court of last appeal. His diagnosis is supposed to be positive. The X-ray should not be the court of last resort but should be considered as only one of the factors in the case, leading to a final diagnosis; the other factors being the clinical symptoms and the laboratory findings. The X-Ray man too often wants to follow up his diagnosis with an exploratory incision or an autopsy, and for that reason his work is sometimes unconvincing. Mistakes are made in interpretation. Can any two X-Ray men make the same diagnosis from the same plates? It is possible that abdominal tumors might press upward upon the stomach and cause apparent malformations in that organ.

G. F. Thomas also called attention to the fact that abdominal tumors such as pancreatic cysts may cause apparent malformations in the stomach.

Sidney Lange in closing said that he had not meant to convey the impression that the X-Ray discloses the diagnosis. Undoubtedly many errors are made in interpretation. The work is still in the developmental stage, and much is to be expected from the improvements which will come with perfected technique. Fortunate are those men who are connected with large clinics where much operating is done and where the X-Ray diagnosis can be checked up and errors in interpretation corrected.

A single radiograph of the bismuth stomach may simulate some very grave condition, but not definite and certain diagnosis should be made upon a single plate. If a stomach shows permanent malformations extending over a period of time it is certain that there is some gross pathological lesion in the organ itself, or in the tissues surrounding the same.

In answer to F. C. Herrick's question, ulcers and early carcinoma can be diagnosed by means of the fluoroscope screen. It should be remembered that carcinomatous patients do not, as a rule, present themselves for examination until the disease is rather far advanced, and that is the reason why so few are diagnosed in the operable stage. The plate will show only gross pathological change. As to the diagnostic importance of the X-Ray in ulcers, Betza and Friedenhoff state that in the case of a fresh ulcer of the duodenum there is a reflex affection of the stomach, which causes the pylorus to permit food to hurry through, whereas, in early gastric ulcer there is pyloric spasm and retention of stomach contents. The X-Ray will show this providing we can rule out hysteria and spasm of the purely nervous type. The X-Ray has this advantage over clinical methods; it is not compelled to wait for blood or distention, or for palpable tumor mass before a diagnosis can be made. The importance of X-Ray examination stands in the following order; history of the case, palpation, and X-Ray examination.

In answer to M. J. Lichty's question, the X-Ray must lean close to the clinical side, and the interpretation must take account of the history and the laboratory findings. It is contributory to correct diagnosis.

## THE OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The Sixty-eighth regular meeting of this Section was held on Friday, November 28, 1913, at the Cleveland Medical Library. The Election of Officers resulted as follows: J. M. Ingersoll, Chairman; Leo Wolfenstein, Secretary.

The program was as follows:

### 1—Report of a Case of Lues of the Vocal Cords, by M. Metzbaum.

Patient, a woman of 55. Always had been in good health. Husband, children and grandchildren healthy. Eight months ago had an attack of pleurisy and shortly thereafter lost her voice. She was given inhalations of steam to no effect. Patient lost 38 pounds in weight and became debilitated and had pains in various parts of her body. She had a mild, general glandular enlargement. Chest negative. No cough. Nose negative. Laryngoscopic examination revealed the left vocal cord covered by a gray membrane which extended over three-fourths of the right cord, and formed a web between them. The membrane was not movable or detachable. There was no inflammation or congestion. The trachea and larynx were freely movable.

Diagnosis: Lues, Wasserman positive. Anti-leptic treatment was instituted. The membrane rapidly came off leaving the cord saw-edged. All other symptoms disappeared and patient regained her former weight.

The noteworthy point in this case is the unusual locality of the only

syphilitic lesion in the body. The origin of the infection is unknown. It was suggested that the injury by steam inhalation may have determined the localization.

W. H. Tuckerman doubted the possibility of scalding the larynx by steam inhalation. He noted that a gumma of the larynx was always slow in forming and was hence frequently mistaken for malignancy.

**2—Report and Presentation of a Case of Sclero-Kerato-Iritis, by J. E. Cogan.**

The case reported failed to appear. It was a patient who had repeated attacks of deep scleritis involving the area over the ciliary region and the adjacent cornea, as well as the iris. This had resulted in a sclerosing of almost the entire cornea and thinning and pushing forward of the entire ciliary region of the sclera together with the cornea.

In this connection Doctor Cogan presented another case of similar appearance, but entirely other etiology. It was a child who, through ophthalmia neonatorum, had had a perforation of the cornea with prolapse of the iris and a resulting staphylocoma cornea, together with an enlargement of the whole eyeball from secondary glaucoma.

**3—Impressions of the Status of the Trephining Operation as a Treatment for Glaucoma, by C. C. Stuart.**

Doctor Stuart gave an account of Col. Elliott's paper at the Chattanooga Convention together with the symposium on Glaucoma, which followed the next day. He also reported his impressions of the operations by Col. Elliott, which he had witnessed at Buffalo, and gave a brief report of two cases of trephining which he had done himself.

W. E. Bruner gave some additional details and reported the three cases he had operated.

W. C. Tuckerman gave an account of four cases he had witnessed Col. Elliott operate at Nashville.

L. S. King reported a case which he had operated.

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## CLINICAL AND PATHOLOGICAL SECTION

The ninety-seventh regular meeting of this section was held at the Cleveland Medical Library, Friday, December 5, 1913, with W. H. Merriam in the chair.

The program follows:

**1—Syphilis of the Spine, by H. G. Sloan.**

In syphilis of the spine the differential diagnosis is the point of chief importance. The disease occurs in all ages, but it is most frequently found in the fourth decade. It is often mistaken for tuberculosis.

Symptoms of the disease are pain, tenderness, and swelling. Pain is more intense at night. There is limitation of movement of the spine, and involvement of the nerves, the skin sensations of the affected side being transferred. The pupils are frequently involved.

Pathological study of the disease shows that it is most likely to occur in those portions of the spinal column most exposed to trauma, i. e., in the cervical and lumbar regions. It is of two types, ostitic, and periostitic. There may be variations and combinations of these. The involvement may be localized or diffuse. The symptoms are due to the pressure of new formed bone or of gumma upon adjacent nerves and other structures. The gummata occur where the vascular supply is richest, and are subject to caseation and other forms of degeneration. There usually occurs, at the same time, a secondary involvement of the meninges causing a leptomeningitis syphiliticus.

The cervical region seems most frequently involved. Of four cases three were in the neck and one in the lumbar region. The patient complains of pain and a stiff neck. Palpation through the mouth, of the vertebral region may find a tender spot, and external palpation elicits tender-



ness and swelling. Stereoscopic X-ray examination is very important and frequently determines the diagnosis. It usually shows a deposit of new bone, or a blurring, or the punched-out figure of a gumma. It does not show destruction of bone as is seen in tuberculosis, but when the activity is not great the picture may be suggestive of the latter. With tuberculosis there is not usually the formation of new bone. The pupils show irregularity of outline and disproportion of size. One also should look for gummata of the bone of the nose and throat. The reflexes are increased on the affected side. Tuberculin should be used in excluding tuberculosis, when the latter disease is strongly indicated.

These cases do not show as strong a Wasserman reaction as that given in leutic involvement of the soft tissues, and often is not positive at all. When the first Wasserman is negative, administer potassium iodide for from four to ten days then upon taking a second Wasserman the reaction will usually be positive. Upon leutic treatment the bone lesion clears up quickly, but the nervous disorders are restored to normal much more slowly.

The local treatment depends upon the severity of the process. In far advanced cases it may be necessary to use a spinal support such as is used in tuberculosis of the spine.

Put the patient on mercury until he is under full control of the drug, after which the dose may be reduced to 1 grain per week. All traces of the disease must be eradicated or there will be a recurrence of the trouble.

Case report: Mr. G. came in complaining of pain and stiffness in neck and shoulder. He had been thus troubled for some time but with intermittent periods of relief. Two days before he was first seen he had noticed a lump on the right side of and opposite the fifth cervical vertebra. Examination showed an elevation about two centimeters in diameter, which was tender to pressure. The skin sensation of the neck and shoulder of the same side were diminished. The pupils were irregular. The Wasserman reaction was negative. The patient denied leutic infection. The radiograph showed a thickening of the right transverse process of the fifth cervical vertebra. After six weeks of mercury treatment the pain disappeared and the patient was restored to comfort.

W. C. Hill in opening the discussion, said that the majority of recorded cases show the involvement to be in the atlas. Occasionally the base of the skull is involved. Trauma, of some kind or other, usually calls the patient's attention to the lesion, or at least it seems to be the determining cause of the involvement. To further differentiate syphilis of the spine from tuberculosis it may be stated that in the latter there is usually a destruction of cartilage, whereas in the former the cartilage is scarcely ever affected. It is not always possible to make a diagnosis from the X-ray plate alone.

H. N. Cole described his treatment of a case of leutic involvement of the fourth lumbar vertebra. The patient had contracted lues six years previously, but owing to the fact that he did not stand mercury well, he continued treatment but a few weeks. The patient had noticed pain in the spine for two years previous to the time that he came under observation. An X-ray was taken and a diagnosis of leutic involvement of the spine was made. His lesion cleared up under treatment with gray oil and salvarsan. It is worthy of note that the Wasserman reaction was negative in this case.

C. L. Graber said that he was treating a case of periostitis of the tibia. In this case both the blood and the spinal fluid had given a negative Wasserman. He raised the question whether or not, in a certain percentage of cases of a mild grade of leutic reaction, it is usual to get a negative Wasserman?

W. E. Lower raised the question as to how many mistakes are made in diagnosing syphilis of the spine by means of the X-ray?

W. C. Hill in answering Doctor Lower's question stated, that he had

correctly diagnosed each of the four cases mentioned by Doctor Sloan, and that his diagnosis had been confirmed by reason of the fact that each of these cases had responded to mercury treatment. However, syphilis of the long bones is much easier diagnosed than leucic infection of the spine.

H. G. Sloan in closing said one cannot be absolutely sure of the correctness of an X-ray diagnosis in every case. The radiograph is of importance when it is considered in conjunction with the symptoms of the case. The simultaneous involvement of nerves, pupils, and the stiffness of the muscles are the other important factors to be considered in making a diagnosis. In answer to Doctor Graber, the Wasserman reaction when positive depends much upon the acuteness of the tissue reaction. In old chronic cases of long standing, the Wasserman may be but feebly positive or negative.

### 2—Lantern Demonstration of a Method of Removing Diverticula of the Urinary Bladder, with Report of a Case by W. E. Lower.

The patient was a man, aged 59, who complained of difficulty of urination. His present illness began two and one-half years previously, at which time he noticed a difficulty in starting the flow, and a prolongation of urination. He had never experienced incontinence or retention of urine, and he had never been obliged to hold his urine over a long period of time.

Cystoscopic examination revealed a prostate somewhat larger than normal. Just to the right of the right ureter was found an opening about as large as a dime. The bladder was filled with argyrol and an X-ray was made. This showed a large diverticulum lying on the right side of the bladder and about of the same size as the bladder itself.

The operation was done under nitrous oxide and novocain. An incision was made just above the pubis and the bladder was dissected free from the peritoneum. Two times during this dissection the latter was cut through, but in each instance this was promptly closed with cat-gut sutures. An incision was made in the anterior bladder wall and the opening of the diverticulum was found. This was then packed with gauze, thereby converting it into a firm cyst-like sac which could then be easily dissected free from the surrounding tissues. An incision was made around the neck of the diverticulum and the latter was severed from its connection with the bladder. In closing, the ureter, which in removing the diverticulum, had been necessarily cut through close to the bladder wall, was split longitudinally for a short distance, was then drawn into the bladder and these flaps were drawn under and sewed to the bladder wall. During this implantation of the ureter the remainder of the former opening of the diverticulum into the bladder was also closed. The incision into the anterior bladder wall was then closed. The skin incision was closed in the usual manner. The patient made an uneventful recovery. Until the development of this technique operations upon diverticula were difficult, and in many cases as much harm as good was done by their removal. The whole difficulty lay in the fact that these diverticula are thin mucus sacs and are extremely difficult to dissect out in their collapsed condition.

J. E. Tuckerman opened the discussion by asking if the entire dissection was extra peritoneal?

W. E. Lower, in closing, said in answer to Doctor Tuckerman's question that the entire operation was done extra peritoneal. In these cases there is usually some obstruction to the outflow of urine; the progressive symptoms beginning with, at first, a difficulty in starting the flow and a prolongation of the flow, to retention.

### 3—Report of the Recent Meeting of the Clinical Congress of Surgeons of North America, by S. W. Kelly.

The fourth annual session of the body was held in Chicago, Novem-

ber 10 to 15, of this year. This, in the speaker's opinion, was the best meeting of the congress held thus far. In point of attendance it was perhaps the largest. The number of physicians and surgeons registered was above 3,700. The large increase in the number registered was probably due to the fact that no tickets to the clinics were issued except to those who had registered. From seventy-five to one hundred clinics were held each day. These furnished accommodations for but few more than seventeen hundred spectators. Such clinics as Murphy's and Ochsner's were always crowded to overflowing.

Among the men of note present at the congress were, Sir Rickman John Godlee, President of the Royal College of Surgeons, Sir Arbuthnot Lane, both of London; Kronig and Gowers, of Freiburg, Germany. Doctor Lane held two clinics at which he demonstrated his method of bone plating; in which operation he at no time touched the wound with his hands. Doctor Kronig presented a paper on the Roentgen Ray treatment of benign and malignant tumors.

Mr. Samuel Hopkins Adams of New York, representing the American Press, made a plea for a better understanding between the medical profession and the press.

A movement was started which has as its object the bringing about of more uniformity of hospitals in the manner of reporting of cases and the following of the case after the patient leaves the hospital.

The American College of Surgeons, an organization similar to the Royal College of Surgeons, was addressed by Sir Rickman Godlee. This organization has for its object the betterment of the science of surgery in this country, and serves as a means of recognition of those surgeons who have passed a certain standard.

Sir Rickman Godlee extended to the congress the invitation of the Royal College of Surgeons of England, and of sixty-one London hospitals to hold the next annual meeting of this Congress in London. The invitation was accepted.

The question was raised as to whether or not these meetings of the congress were really worth while; if the good to be derived from the clinics was worth the increased risk to the patient caused by the crowding of operating rooms, and by the more or less increased nervous strain of operator and assistants; if what one saw, who was standing in a crowd of spectators at some distance from the operating table, was really instructive. Is it not possible that the profession of surgery is often done a harm by reason of the fact that the spectacular operating tempts the poorly trained man to go home and attempt to do the same sort of work—work that he is unfitted to do?

S. W. Kelly in reply said that the criticism was to be expected, and that much that had been said is true. At the same time it is not necessary that the conditions mentioned need prevail. The man who operates should be able to talk while he works; he should be a teacher and accustomed to operating in the presence of an audience. This would eliminate the hazard run by the patient. Without doubt the congress is worth while, we see how to do some things and we see *how not to do* some others. It is true that these clinics may sometimes end in a rush of the unfit for the instrument store, but on the whole the good done far outweighs the harm.

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#### EXPERIMENTAL MEDICINE SECTION.

The Seventieth regular meeting of this section was held Friday, November 14th, 1913, at the Cleveland Medical Library.

The Program included the following papers:

1. **Neuroblastomata: with a Report of a Case Illustrating the Three types that Arise from the Sympathetic System.** by H. R. Wahl.

Neuroblastomata are new growths that occur much more frequently than is generally recognized even though they are composed of the most

highly differentiated cells in the body, the nerve cells. The majority of the cases published in the literature have been reported within the last ten years. During the present year seven cases have been reported. These may occur in any part of the nervous system but in the majority of the cases they occur in connection with the sympathetic system.

In the present case there were two tumor masses, the one situated in the region of the celiac plexus and the other occupying the position of the left adrenal gland. Metastases were present in the liver and both kidneys. The case had been diagnosed previously as tuberculous peritonitis and the above findings were discovered at autopsy.

A neuroblastoma is any tumor composed of true, newly formed nerve elements, which may be either differentiated or undifferentiated in character. In the sympathetic system the undifferentiated neuroblastomata are of two types, the ganglio neuromata and the cromaffin tumor, while the undifferentiated tumor is the so-called malignant neuroblastoma. The two types of differentiated neuroblastomata are almost invariably benign, while the undifferentiated form possesses very malignant properties.

Although the three types differ widely in many respects they are nevertheless derived from a common mother cell.

W. H. Todd, in opening the discussion said that he had seen a similar case last fall in a boy, aged 6. The patient developed a tumor on the right side of the neck. From the anemia present the case was diagnosed as tuberculous adenitis. In the operation for removal the right sympathetic was severed. The tumor was found to be a ganglio neuroma. Ganglio neuromata of the inferior and middle cervical ganglia may be operated on and not noticed.

H. N. Cole asked if the tumors ran in families?

H. R. Wahl in reply said that the cases thus far had been so few that he was unable to state whether the tumor ran in families or not. In the present case, however, the post mortem was granted because the sister of the patient had died a year before with practically the same symptoms.

## **2. Report of a Case of Hodgkin's Disease with Bacteriological Findings and Exhibition of Cultures. Preliminary Report, by Allen Graham.**

In almost any textbook of medicine or surgery today one will find in the list of disease of doubtful origin or unknown etiology the condition known as Hodgkin's disease. The nature of the disease has been interpreted in radically different ways by different authors. Among those who have regarded it as an infectious disease the chief controversy has been whether it were a specific disease of unknown etiology or non specific disease in which more than one etiological factor plays a role or whether it were a special form of tuberculosis.

After conducting a series of experiments and extensive research on the subject, the speaker said that he had obtained results which would lead to the probability that the disease was caused by a specific organism, although the bearing of later findings on the subject, with more final conclusions will be announced later.

The conclusions in detail, reached from the research are:

1. From a typical case of Hodgkin's disease, a pure culture of an organism has been obtained corresponding morphologically, in staining reaction and in its cultural characteristics to an organism described by Fraenkel and Minch, Negri and Mieremet, and by Bunting and Yates.
2. The organisms may be stained with methylene blue in sections from a Hodgkin's gland.
3. A rabbit survives injection, intravenous, or one half C. C. of a salt solution suspension of a blood serum culture for at least four weeks.
4. A dog survives an injection of 4 C. C. of salt solution suspension into the spleen for at least four weeks.

5. A guinea pig survives intra-peritoneal injection and injection into the spleen for at least fourteen days.

6. Fourteen days after injection into the spleen of a guinea pig the organism may be recovered on cultures and purified by plating or by bouillon dilutions and transplanted.

David Marine, in opening the discussion, said that evidence secured thus far pointed to the etiology of the disease becoming known in the near future. The fact that the lesion of the disease cannot be reproduced in animals is not surprising for the organism which may be the causative factor may have a predilection for human tissue.

W. T. Howard asked whether the blood serum of a patient with Hodgkin's disease would agglutinate the organism. He said that diagnosis of Hodgkin's disease is very difficult in some cases. Only when one gets typical lesions can he be sure of it. Anything that will shed light on the diagnosis will be gratefully received. Pathological anatomists, long ago decided that the disease was of infectious origin. Diseases of the lymphatic glands are among the hardest with which we have to contend.

Allen Graham, in reply said that the literature relating to the infectious origin of Hodgkin's disease was meagre and in no case recorded had agglutination been tried. He said, however, that as soon as the material became available, he intended to investigate that phase of the question.

### 3. Further Observations on the Goitre in Fish. Its Cure and Prevention, by David Marine.

Prevalence of goitre in fish had been brought to the speakers attention several years ago, by the officials of a hatchery. The fish in this case, brook trout, had become listless and lost their fighting qualities. All of the conditions at the hatchery made it an ideal one for study.

At the time the investigation was begun, it was found that the fish had been kept exclusively on a beef liver diet, and the large majority of them showed marked goitre developement. The diet, except for the younger fish, up to nine months, was changed accordingly to butter fish. In the younger fish this seemed to a large extent to remove the tendency to goitre development and in the case of the older fish, the goitre already developed showed an actual retrogression.

F. C. Hitchings in discussion of this paper said that feeding seemed to be the factor, but he asked what the normal food of the brook trout was. Why was fish selected as the food.

David Marine replied that the normal food of the brook trout is fish, protozoa and metazoa. Therefore fish was chosen. Sea fish was chosen as the food because it is a convenient means by which to give a small amount of iodine. The problem here presented is a great one in fish culture and the means employed in this case will absolutely relieve it.

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## COUNCIL MEETINGS

At a meeting of the Council of the Academy of Medicine held Wednesday, December 10th, 1913, at the Bismarck, the following members were present: The President, Doctor Sanford, in the chair; Doctors Yarian, Storey, Updegraff, Merriam, Cummer, Follansbee, Cooley, Dexter, McGee, Gallagher and J. E. Tuckerman.

The minutes of the last meeting were read and approved.

The following were elected to Active Membership: T. R. Kennerdell, M. D., Samuel C. Lind, M. D., Pio Milani, M. D., Jay D. Sharp, M. D., H. R. Wahl, M. D.

The following names of applicants were ordered published: For Active Membership—Geo. B. Tupper, M. D., Samuel S. Quittner, M. D., For Associate Membership in the Veterinary Section—N. D. Backus, V. S., A. N. Shifrin, V. S., W. H. Turner, V. S.

The Secretary was instructed to inform Doctor Charles O. Wildasinn that his application for membership was acted upon unfavorably.

The applications of Doctor J. A. Hunter and Doctor J. C. Carothers were laid on the table.

The Secretary read the list of members for non-payment of dues.

The reports of the Chairmen of the Sections were read. No report was given by the Medico-Legal Section.

Doctor McGee requested that the Medico-Pharmaceutical Section be given time to reorganize during the coming year. Carried.

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## BOOK REVIEWS

**Diet in Health and Disease.** By Julius Friedenwald, M. D., Professor of Gastro-Enterology in the College of Physicians and Surgeons, Baltimore; and John Ruhrah, M. D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Fourth edition, thoroughly revised and enlarged. Octavo of 857 pages. Philadelphia and London: W. B. Saunders Company, 1913, Cloth, \$4.00. Half Morocco, \$5.50 net.

No general measure in Medicine is as valuable as Diet. The authors have presented a very comprehensive review of the subject. The recent dictum said to have come from Washington: "Eat what you like, when you like" finds no approval or condemnation in this book. In fact, the part played by appetite as a guide to the body intake in health and in disease is scarcely touched upon. In view of the work of Chittenden and others it is strange that this important subject should not have been considered.

H. F.

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**The Practical Medicine Series, Volume III, Series 1913. The Eye, Ear, Nose and Throat.** Edited by Casey A. Wood, C. M., M. D., D. C. L.; Albert H. Andrews, M. D.; Gustavus P. Head, M. D. Price of this volume, \$1.50. Price of the series of ten volumes, \$10.00. The Year Book Publishers, Chicago.

This volume is the one of a series of reviews on general medicine which takes up diseases of the Eye, Ear, Nose and Throat. It gives a valuable review of the field as seen in articles published in 1912. Beside the usual reviews it has interesting articles on Conservation of Vision and of Hearing, and an outline of discussions on the question of Refraction, the oculist, and the optometrist, with suggestions as to the solution of the difficulties. For the busy practitioner this is a valuable volume, and the specialist can profit by reference to it, especially in the reviews of the leading foreign articles.

W. J. A.

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**Indigestion, Constipation and Liver Disorders.** By G. Sherman Bigg, Fellow of the Royal College of Surgeons, Edinburgh, members of the Royal College of Surgeons, England; late Surgeon-Captain of the Army Medical Staff; Staff Surgeon, Allahabad, India. Price, \$1.50 net. Paul B. Hoeber, New York, 1913.

The attitude of this book toward the more or less generally accepted positions of modern medicine is arbitrary and unjustifiable. For instance the author practically says that operation in appendicitis should only be carried out as a last resort; that the appendix should not be unnecessarily sacrificed because of its function of secreting a substance for the lubrication of the bowel; that many cases can be effectively treated with opium and antiphlogistine externally and that chronic appendicitis can be cured by vibratory massage and electricity. The discussion of liver disorders is quite similar. The bile is variously thinned and modified by polypharmaceutical methods. Numerous proprietary preparations (with the name of the supply house in parenthesis) are complacently recommended.

V. C. R.

**A Practical Treatise on Medical Diagnosis.** For Students and Physicians. By John H. Musser, M. D., LL. D., late Professor of Clinical Medicine in the University of Pennsylvania; formerly President of the American Medical Association, et cetera. New (Sixth) edition, revised by John H. Musser, Jr., B. S., M. D., Instructor in Medicine in the University of Pennsylvania; Assistant Physician to the Philadelphia Hospital; Physician to the Medical Dispensary of the Presbyterian Hospital; Physician to the Medical Dispensary of the Hospital of the University of Pennsylvania. Octavo 793 pages, with 196 engravings and 27 colored plates. Cloth, \$5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

This well and favorably known work on general diagnosis is revised by the son of the original author. Some sections have been abridged and others supplemented by the more recent additions to medical knowledge. The chapters on first sight impressions and general considerations subjective and objective, are original and reveal the great experience of the distinguished author. The sections on laboratory work are not detailed and as stated in the preface, only the more important tests are given such as every physician could carry out in his own laboratory. For instance the Wassermann reaction is given only in principle, the technique being considered quite beyond the scope of the book. The diagnostic possibilities in connection with the various common symptoms are given quite exhaustively and are really the best part of the book. The chapter on nervous disease is much less complete. The work has the merit of not attempting to cover too much but of covering its title, Medical Diagnosis, quite fully.

V. C. R.

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**The Diseases of Children.** By Henry Enos Tuley, M. D. Price, \$5.50. C. V. Mosby Company. 1913.

Like most text books of Pediatrics, this work gives a relatively large amount of space to infant feeding. The methods for the production of certified milk given are those adopted by the American Association of Medical Milk Commissions. The author does not seem to accept the more recent recommendations of long interval feeding. Many diseases characteristic of infancy such as the pyelitis of girl babies are treated in a very cursory manner—less completely in fact than in a general text book of medicine. There are short chapters on Eye, Ear, Nose, Throat and Skin. Treatment seems relatively more fully given than in most works of its kind.

V. C. R.

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## ACKNOWLEDGMENTS.

The Unexpurgated Case Against Woman Suffrage, by Sir Almroth E. Wright, M. D., F. R. S. Paul B. Hoeber, New York, 1913.

Pyorrhoea Alveolaris, by Friedrich Hecker, B. Sc., D. D. S., A. M., M. D., Member of the Academy of Science of St. Louis, Mo.; Consultant at Bell Memorial Hospital of the School of Medicine, University of Kansas, Rosedale, Kansas; Consultant at St. Margaret's Hospital, Kansas City, Kansas. C. V. Mosby Company, St. Louis, 1913.

Disease and Its Causes, by W. T. Councilman, A. M., M. D., LL. D., Professor of Pathology, Harvard University. Henry Holt and Company, New York. Williams and Norgate, London, 1913.

Causes and Cures of Crime, by Thomas Speed Mosby, Member of the American Bar; Former Pardon Attorney of the State of Missouri; Member American Institute of Criminal Law and Criminology. C. V. Mosby Company, St. Louis, 1913.

Science and Education. A series of Volumes for the promotion of Scientific Research and Educational Progress. Edited by J. McKeen

Cattell. Volume II—Medical Research and Education. The Science Press, New York and Garrison, N. Y., 1913.

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Progressive Medicine. Volume XV. No. 4. Whole Number 60. 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, Philadelphia. Assisted by Leighton F. Appleman, M. D., instructor in Therapeutics, Jefferson Medical College, Philadelphia. December 1, 1913. Lea & Febiger, Philadelphia and New York.

The Chemistry of the Leucocytozoon Syphilidis and of the Host's Protecting Cells, by James Eustace Radclyffe McDonagh and Robert Lauder Mackenzie Wallis. From The Biochemical Journal, Vol. VII, No. 5, October, 1913.

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A Contribution to the Study of Chronic Intestinal Stasis, by William Seaman Bainbridge, Sc. D., M. D., New York. Reprinted from the Medical Record, September 27, 1913.

Vaporized Ether with Oil of Orange. A Plea for Refined Methods in Anesthesia, by Thomas H. George, M. D., Assistant Surgeon, Huron Road Hospital; Gynecologist, City Hospital, Cleveland. Reprint.

Exophthalmic Goiter Cured by Ligating One Superior Thyroid Artery, by Leigh F. Watson, M. D., Oklahoma City. Reprinted from The Medical Record, September 27, 1913.

Abolishing Pain after Operations with Nerve Block A Distance, by Leigh Watson, M. D., Oklahoma City. Reprinted from Annals of Surgery, May, 1913.

The Truth about Wood Alcohol, Wood Products Company, Buffalo, New York, November 10, 1913.

Catalogue and Announcement of the Harvard University and Massachusetts Institute of Technology. Published by the School for Health Officers, 240 Longwood Avenue, Boston, Massachusetts, 1913.

The Sanitary Waiting Room, by W. C. Rucker, Assistant Surgeon General, United States Public Health Service. Reprint No. 147 from the Public Health Reports, October 10, 1913. Washington Government Printing Office. 1913.

Paralysis During Antirabic Treatment, by H. E. Hasseltine, Past Assistant Surgeon, United States Public Health Service. Reprint No. 148 from the Public Health Reports, October 24, 1913. Washington Government Printing Office. 1913.

Rat Proofing a Municipal Sewer System, by French Simpson, Past Assistant Surgeon, United States Public Health Service. Reprint No. 149 from the Public Health Reports, October 31, 1913. Washington Government Printing Office. 1913

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## MEDICAL NEWS

**Doctor Carl A. Hamann Convalescing.**—To the readers of the Journal in Cleveland, in the State of Ohio, and throughout the country, we are sure there can come no more welcome information than the assurance from those in attendance upon Doctor Carl A. Hamann at Charity Hospital, that his convalescence is progressing satisfactorily. Doctor Hamann was twice operated for the relief of septic poisoning and for



many days his condition was of the gravest concern to the physicians in charge and to his many friends.

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**Credit for Recent Publication, to the Journal of the American Public Health Association.**—To the Journal of the American Public Health Association belongs the credit of original publication of a paper by J. H. Landis, Health Officer of Cincinnati, on "The Social Evil in Relation to the Health Problem." Doctor Landis recently read this paper before the Academy of Medicine of Cleveland, and it was subsequently published in this Journal, and we regret that through some oversight the proper credit was not given for its previous publication.

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**Annals of Surgery, Anesthesia Number.**—The December issue of the *Annals of Surgery* is almost double the size of an ordinary number. It is a special Anesthesia Number and offers some of the most important papers ever presented on this subject.

In getting out this extraordinary issue the publishers have not sacrificed any space usually given up to the many valuable papers on surgery which appear in this publication. Nor have they spared any pains or expense to make this a banner issue.

Any one interested in Anesthesia should read this December number of the *Annals of Surgery*—it is a master-piece.

We are listing below some of the papers found in this issue:

J. T. Gwatmey, The American Association of Anesthetists. Karl Connell, Accuracy in Anesthesia. C. G. Parsons, Reflex Action During General Surgical Anesthesia. W. F. Honan, Intravenous Anesthesia. O. J. Cunningham, Nitrous Oxide and Oxygen Narcosis. H. H. Janeway, Intratracheal Anesthesia. F. J. Cotton, Deaths from Anesthesia. W. S. Bainbridge, The Question of Anesthesia in Goitre Operations. H. E. Mereness, Jr., Stovaine Spinal Analgesia in Prison Surgery. F. H. McMeehan, Medicolegal Aspects of Anesthesia. J. C. Bloodgood, Studies in Blood Pressure with Reference to Shock. J. G. Callison and J. E. MacKenty, Tumors of the Carotid Body. J. T. Walker, The Early Diagnosis of Hydronephrosis by Pyelography and Other Means. L. G. Rowntree, F. S. Cary and J. T. Geraghty, The Value and Limitation of Diastase Urea and Phthalein in Estimating Renal Function. G. J. Thomas, Report of Case of Pelvic Kidney: Diagnosis before Operation. J. H. Outland and L. Clendening, Myoma of the Stomach. R. E. Farr, Primary Sarcoma of the Large Intestine. A. S. Vosburgh, Non-Rotation of the Intestine. J. J. Moorehead, A Retrorectus Laparotomy Incision and Closure. T. W. Todd, The Anatomy of a Case of Carcinoma Recti. C. E. Farr, Strangulation of the Undescended Testis. J. F. Baldwin, Sarcoma of the Chest Wall.

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**Infectious Diseases.**—During the fall the various infectious diseases have been very prevalent throughout the country, in some places small epidemics occurring. Cases of diphtheria and small-pox have perhaps occurred in greatest numbers. For the last week in November diphtheria was reported, among others, from the following places: Hamilton, O., 232 cases; Duluth, Minn., 40 cases, traced to a dairy; La Rue, O; Hastings, Neb., where one school was closed; Suffield, Conn.; Worcester, Mass.; Antietam Furnace, Md., school closed; La Crosse, Wis., school closed; Detroit, where an antitoxin campaign was urged by the health board; Brenham, Tex., one county school closed; Greencastle, Ind.; Warsaw, Ind.; Waddy, Ky.; St. Paul, Minn., 140 cases during November; one small epidemic was traced to a certain dairy. November 19 the offices of the State Board of Health at Jackson went into voluntary quarantine on account of the discovery of diphtheria infection in the throats of the laboratory staff, caused by the careless sending in of specimens by physicians throughout the state, similarly to the trouble in the state board

office in Atlanta, Ga., where a number of cases of the disease occurred, compelling the closing of the office.

**Small-pox:** At Oklahoma City 12 cases were reported; from Pennsylvania at Johnstown, Altoona, Wilkes-Barre, Reading, Huntington, Bowmanstown and Philadelphia; Milwaukee, Wis., where 21 cases were reported; De Pere, Wis.; Kansas City, Mo.; in the jail at Opelika, Ala., court postponed; Sault Lake City 29, cases; Niagara Falls, two schools closed; Mt. Horeb, Wis., 14 cases; people defied health board order to vaccinate; Norway, Kan., school closed; Chicago, 11 cases occurred in Bernarr McFadden's "Healthatorium," none of whom had been vaccinated; at Joliet an epidemic with 40 cases occurred.

**Measles:** Riverbank, Cal., 25 cases in the grammar school; Rickardsville, Iowa, schools closed; Walla Walla, Wash., 50 per cent of pupils afflicted; at Kodiak, Alaska, and the Afognak Islands, 1000 natives have died from epidemic measles.

**Scarlet Fever:** Sunbury, Pa., 55 cases reported; some schools closed; Thurston, N. Y., schools closed; Paducah, Ky., strict quarantine enforced on account of epidemic; Everett and Malden, Mass., pest-house opened to accommodate the patients; 50 cases in Everett and some schools closed; Wapping, Conn.; Lynchburg, Va., quartine lifted from the Miller Female Orphanage, where 18 cases but no deaths occurred.

**Chicken-pox:** Twenty cases reported from Topeka; Canton, Ill.; Wilkes-Barre, Pa.; Little Rock, Ark.

**Trachoma:** Columbus, Ind., 49 cases reported among school children in the county; Florin, Cal., 6 cases found among Japanese school children.

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**Meeting of the Physicians of the South.**—The Southern Medical Association held its seventh annual meeting in Lexington, Ky., November 18 to 20, under the presidency of Doctor Frank A. Jones, Memphis, and elected the following officers: President, Doctor Stuart McGuire, Richmond, Va.; vice-presidents, Doctor J. W. Jervey, Greenville, S. C., and F. H. Clarke, Lexington, Ky.; secretary-treasurer, Doctor Seale Harris, Mobile, Ala. (re-elected). Richmond, Va., was selected as the place of meeting for 1914. The following section officers were appointed: Eye, Ear, Nose and Throat—Doctor Homer Du Puy, New Orleans, chairman; Doctor S. Nelson, Memphis, secretary; Hygiene and Preventive Medicine—Dr. R. M. Cunningham, Ensley, Ala., chairman; Doctor W. S. Leathers, University, Miss., secretary.

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**The American Association of Immunologists.**—This society was organized June 15 at Minneapolis, Minn., with forty-one charter members, all of whom have been pupils of Sir Almroth E. Wright of London. The objects of the society are: "To unite the physicians of the United States and Canada who are engaged in the scientific study of immunology and bacterial therapy. To study the problems of immunology, and to promote by its concerted efforts scientific research in this department. To spread a correct knowledge of vaccine therapy and immunology among general practitioners." The officers temporarily chosen are: President, Doctor Gerald B. Webb, Colorado Springs, Colo.; vice president, Doctor George W. Ross, Toronto, Canada; treasurer, Doctor Willard J. Stone, Toledo, Ohio; secretary, Doctor Martin J. Synnott, Montclair, N. J., and council, Doctors A. Parker Hitchens, Glenolden, Pa.; Oscar Berghausen, Cincinnati; J. E. Robinson, Temple, Tex.; Campbell Laidlaw, Ottawa, Canada, and Henry L. Ulrich, Minneapolis. The first annual meeting of the society will be held June 1, 1914, at Atlantic City, N. J.

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**Hospital News.**—Toronto is considering establishing two new hospitals to serve the east and west ends of that city, the total cost of both institutions to be about \$1,000,000. Sites for both have been selected and approved by Doctor Bruce Smith, inspector of hospitals for Ontario

and Doctor Chas. J. C. O. Hastings, medical officer of health for Toronto. It is likely that the city will submit by-laws at the coming municipal elections to provide \$250,000 as a start for each institution. Doctor Bruce Smith says Toronto needs hospital accommodation for at least 500 more beds.

At the annual meeting of the medical staff and the board of governors of the Western Hospital, Toronto, the medical staff vigorously protected against appointments of three chiefs of clinics made without their consent. Recently a fine new hospital building was completed and arrangements made whereby medical students from the medical department of the University of Toronto would receive clinical instruction. The university authorities required three services of 100 beds each, and it was over the appointment of the heads of these services that the trouble arose. The following officers were elected: Dean of the medical staff, Doctor Elias Clouse; secretary, Doctor Frank Trebilcock; medical superintendent, Doctor James McCullough. During the year ended September 30, 1,243 patients were treated in the Montreal Maternity Hospital, an increase of 250 patients over the previous year. The benefits of the institution were bestowed on twenty-five nationalities. The staff of nurses now number twenty-one.

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**Quarantine Regulations for Panama Canal.**—Orders have been issued by Colonel Goethals, promulgating the executive order of the President for the administration of the maritime quarantine regulations, to go into effect with the opening of the Panama Canal. These regulations apply to the entire Canal Zone. The bill of health that must be filled out and certified to by the masters of all vessels entering the canal, requires not only a complete description of the vessel, but a certificate as to the source of its food and water supplies, the sanitary history of the officers and crew and of the passengers, the sanitary history of the cargo and effects of those on board, the sanitary condition of the ship and a certification that none on board is ill or has been exposed within two weeks to yellow fever, cholera, cholerae, small-pox, typhus fever, plague or leprosy.

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**Babies' Welfare Work Reduces Infant Mortality.**—The Babies' Welfare Association has announced the results of an investigation made by the Department of Health, covering the period of hot weather. Out of 33,000 babies under two years of age enrolled in the fifty-five milk stations of the department, between January 1 and November 1, the death rate was only four to a thousand, in spite of the fact that a large number of these babies were suffering from digestive disturbances at the time of enrollment. During June, July and August only 113 milk station babies died. At the same time the death-rate of the babies of the city under two years of age was 75 per thousand. There have been 493 fewer deaths of infants under one year of age in all the boroughs than during the same period of time in the previous year. If this record continues for the remainder of the year New York will be able to show an infant mortality of only 100 or less for each one thousand births.

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**Prevention of Infant Mortality.**—The fourth annual meeting of the American Association for Study and Prevention of Infant Mortality was held in Washington, D. C., November 14-17, under the presidency of Doctor L. Emmett Holt, New York City. There were sessions on nursing and social work, pediatrics, obstetrics, eugenics, public school education for prevention of infant mortality, and vital and social statistics. The association elects its president a year in advance, and Mr. Homer Folks of New York City was elected for 1915. The president for the ensuing year is Doctor J. Whitridge Williams of Baltimore. The following other officers were elected: Vice Presidents, Doctor M. J. Rosenau. Boston.

and Miss Julia C. Lathrop, Washington; secretary, Doctor Philip Van Ingen, New York; executive secretary, Miss Gertrude Knipp, Baltimore (re-elected), and treasurer, Mr. Austin McLanahan of Baltimore.

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**Infant Mortality in Montreal.**—The infant mortality of Montreal is practically double that of any other city in North America. Montreal with a population of 568,000 had 5,534 infant deaths in 1910, while Toronto with a population of 410,000 had 1,420. In 1912 in Montreal the deaths decreased, numbering 4,835, while in Toronto they increased and amounted to 1,584. The rate per thousand for the three years in Montreal was 9.2, while in Toronto it was 3.6. During the present year up to August 15 there had been registered in Montreal, 4,172 infant deaths.

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**Practicing Woman Physician in Berlin Receives Title of Professor.**—Doctor Rahel Hirsch, a woman physician in the great Charité Hospital of Berlin, has received the title of professor. This is the first time the title has been bestowed on a practicing woman physician in Germany. Besides Doctor Hirsch, there are only three women professors in Germany; one is professor of philosophy at Bonn and one in the State Musical College. The third is Prof. Lydia Rabinowitch of Berlin, formerly assistant to Robert Koch. The work of Doctor Hirsch has been published mainly in the *Handbuch der Biochem.* and the *Charité-Ann.* and has dealt with the thyroid and internal secretions and the diseases connected therewith, over thirteen important articles having appeared since 1905. She has been at the Charité since her graduation in 1903, and is now 43 years old.

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**Large Donation to Medical School.**—The Board of Trustees of Cornell University announces that a gift of about \$4,000,000 has been made to endow the Cornell University Medical College. It is understood that the donor is Col. Oliver Hazard Paine, New York City, who gave \$500,000 several years ago for the establishment of the school. This endowment fund will provide an annual income of \$200,000 for the medical school. This is one of the greatest individual gifts ever given to an educational institution, and it is especially pleasing that it is given for the advancement of medical education. With this increased endowment Cornell is given an exceptional opportunity to develop a thorough, systematic and complete course of training for medical students, under the ablest teachers and in an atmosphere of medical research. The school cannot fail to turn out better-equipped doctors, imbued with a faith in greater things to come in medicine, and enthusiastic in their desire to aid in solving the complex problems of alleviating and preventing disease.

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**Congress Elects Officers.**—The following officers of the Clinical Congress of Surgeons of North America were elected, Thursday, November 13, 1913; president, Doctor John B. Murphy, Chicago; vice president, Doctor George E. Armstrong, Montreal, Quebec; secretary, Doctor Franklin H. Martin, Chicago (re-elected); treasurer, Doctor Allen B. Kanavel, Chicago (re-elected); business manager, Mr. A. D. Ballou, Chicago (re-elected). The next meeting of the congress will be held in London, England, the fourth week in July, 1914. A special committee was appointed to take up the work of standardization of surgery. This committee is composed of Doctors Lewis S. McMurtry, Louisville, Ky.; Charles H. Peck, New York City; Henry P. Newman, San Diego, Cal.; William L. Cousins, Portland, Me., and Charles A. Davison, Chicago.

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