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EDITORIAL.

THE FLY.

When we began to call attention to the fly as an agent in the spread of disease, we had not many listeners. To-day the condition is quite changed. Not only is the medical profession aware of the danger of the fly, but the public have a lively fear of the fly crawling on a piece of pie, or falling into a bottle of milk. This fear is well founded. In another page we given an important pronouncement upon this subject from the *British Medical Journal*.

Dr. C. G. Hewitt, of Ottawa, gave a very instructive address on the "fly" at the Health Exhibit during the Industrial Fair. Among other things Dr. Hewitt said:

"By the aid of the hairy nature of the fly's legs and abdomen which could not fail to collect filth and bacteria wherever they were met with, photos of culture plates show large colonies of typhoid, tubercular and other bacteria.

"Far more germs find lodging inside of a fly than without, and, accordingly these may be taken in by the fly or the egg may have become inoculated by the usually filthy substance in which it was deposited. After a few hours the maggot emerges, already infected nor does it recover when passing through the pupa stage. And so you have your fly born inoculated. Throughout the various transitions from the laying of the eggs till the full-fledged flies are ready to propagate no more than nine or ten days transpire in hot weather. Now a fly deposits from 120 to 150 eggs at a time, and repeats this performance six or eight times during the season.

"A fly captured in a living room was allowed to stroll over a culture plate. Thirty colonies of six different species of germs developed. Another captured in a dining-room walking over a culture plate gave rise to 46 colonies of seven varieties, and yet another found on the flies' elysium, the putrifying garbage heap, deposited in the plate the nucleus of 116 colonies of ten varieties. Over 6,000,000 germs have been found on one fly."

The foregoing is proof enough to satisfy any one of the great danger that lurk around the common fly.

OPTOMETRICAL CONVENTION.

A short time ago the medical profession of Canada was entertained by the report of the Optometrical Convention that was held in Toronto. There were many "Doctors" at the convention from all over the United States and Canada. We have no means of informing our readers from what universities these optometrists secured the degrees that entitle them to assume the title of "doctor." The probabilities are that these degrees are from some self constituted body, or even self assumed, as we remember a barber in Toronto a few years ago doing when he dubbed himself doctor of the universal art.

But these optometrists a short time ago tried for legal recognition, and may do so again. It is necessary that the medical profession should be on the alert in this matter. There is absolutely no justification for the recognition of opticians as a section of the medical profession. Examination of eyes for refraction is only a very limited subsection of a section of medical practice.

It would be bad enough to graduate men as ophthalmologists alone. This would open the door to doctors of otology, cardiology, gastrology, renology, etc. But to still further subdivide into doctors of refraction, doctors of keratology, doctors of retinology, is going to the very depths of folly, and would surpass even a mockery to find words with which to lampoon the farce.

THE ONTARIO MEDICAL COUNCIL.

The recent meeting of this body was in many ways the most important in its history.

The universities now conduct the primary and intermediate examinations, and the medical council the final examinations. This has been our contention for some time. We held that it was a waste of both time and energy to examine a student of the university and immediately afterwards examine him for the Council on the same subjects. This view has prevailed.

Then we have long contended that the medical council was too large a body. Steps were taken looking towards a reduction. The direct representatives of the profession may be reduced from 18 to 9. Those from universities and colleges from 8 to 3, and the homœopathic representatives from 5 to 3. This would reduce the council from its present unwieldy and expensive size of 31 to a body of 14. It would also cut out those from defunct medical colleges.

We also contend that the council exists for the profession and not for itself. It has no right to charge more from the profession and the students than just enough to meet its legitimate expenses. This view is soon to win like the others.

The present register is about as out of date as Strabo's geography would be in a modern college. The council must get out a new register. There is absolutely no excuse for delay.

One more point. The council must take steps to aid in the establishing of a Dominion Medical Council. The Government of Canada has done its share of this great onward movement. The various provincial councils must now do their part. The medical profession wish a national profession. Nothing less will do. The provincial medical council that attempts to stand in the way will be swept out of existence. The wheels of progress must not be impeded by any narrow provincialisms.

CANVASSING FOR SUBSCRIBERS.

We understand that a short time ago a gentleman sought to secure subscribers for the *Journal of the Canadian Medical Association*.

We would like to know if the "Journal" is to be supplied to these new men as any journal might, merely because they pay a certain price for it. This would mean that the Canadian Medical Association has gone into an ordinary publishing business.

If this is not the case, are those "new subscribers" to be enrolled as members of the Canadian Medical Association? If this is the case it would be well to explain who acts as censor, as to the ethical standard of these "members." The Canadian Medical Association has a certain code of ethics as the standard for membership. It certainly is not one of a five dollar bill. It will not do to bring the National Association down to the level of mere commercialism.

DOCTORS IN THE HOUSE OF COMMONS.

There are some 6,000 medical practitioners in Canada in a population of about 8,000,000. This gives about one doctor to each group of 1,333 persons.

There are 19 doctors in the new House of Commons in a total membership of 221. This gives about 1 in 12. The doctors have, therefore, shown great strength in the public to come out so strong in a political contest where the feeling was so much divided.

By provinces they are as follows:

Ontario: Frontenac, Dr. J. W. Edwards; Grenville, Dr. J. B. Reid; East Grey, Dr. T. S. Sproule; Ottawa, Dr. J. L. Chabot; South Perth, Dr. M. Steele.

Quebec: Beauce, Hon. Dr. H. S. Beland; L'Islet, Dr. E. Paquet; Rimouski, Dr. H. Boulay; Three Rivers and St. Maurice, Dr. N. Normand; Gaspé, Dr. Gauthier.

Nova Scotia: Halifax, Dr. Blackadar; Lunenburg, Dr. D. Stewart.

New Brunswick: St. John City and County, Dr. J. W. Daniel.

Manitoba: Provencher, Dr. J. P. Molloy; Marquette, Dr. W. J. Roche; Souris, Dr. F. L. Schaffner.

Saskatchewan: MacKenzie, Dr. E. L. Cash.

Alberta: MacLeod, Dr. N. Warnock; Red Deer, Dr. M. Clark.

British Columbia and Prince Edward Island have no medical members.

A group of 19 members can make their voice heard in the councils of the country. On questions of a political nature these members will differ; but when it comes to a question of a purely medical, sanitary, or public health issue, they may be depended upon to be united. It may be at once granted that both parties desire the welfare of the country. This being the case, either party in power would be likely to give due consideration to an opinion coming from 19 members, who could have no other wish than the good of the people. If these 19 will be true to their profession they can accomplish much.

COMBINED EXTERNAL AND VAGINAL VERSION.

Stowe reaches the following conclusions: The combined external and vaginal version is not dependent upon the size of the cervix nor the degree of its effacement. It is often impossible to correct a malpresentation during the later weeks of pregnancy by external methods alone. Preliminary dilatation of the perinæum in primiparæ and the version itself does not tend to terminate the pregnancy. There is little difficulty in maintaining the foetus in its new position. Danger of premature separation of the placenta during pregnancy is inconsiderable. The proper presentation of the foetus should be obtained before labor begins. The operation is easier of performance before the membranes have ruptured than after. The danger of premature separation of the placenta depends upon the degree of uterine retraction and the quantity of liquor amnii in the uterus. The danger of infection is reduced to a minimum if the hand does not enter the uterus. In certain cases of placenta prævia the foot can be brought down to the inlet before the membranes are ruptured. It is easier to secure a foot than in the Braxton Hicks method.

ORIGINAL CONTRIBUTIONS.

THE PHENOLSULPHONEPHTHALEIN TEST FOR
ESTIMATING RENAL FUNCTION.*

By L. G. ROWNTREE and J. T. GERAGHTY,

From the Pharmacological Laboratory of the Johns Hopkins University and the Genito-Urinary and
Medical Clinics of the Johns Hopkins Hospital.

INTRODUCTION.

In July, 1910 (1), we presented our original communication on the results obtained on our experimental and clinical studies of the functional activity of the kidneys by means of phenolsulphonephthalein. Some additional data were presented in subsequent papers (2). The present communication is a resume of our experience with the test during the past two years (3) and deals particularly with its value in relation to nephritis, the study of which was undertaken at the suggestion of one of us (R).

Phenolsulphonephthalein (4) (which was first prepared by Remsen) is a bright red crystalline powder, somewhat soluble in water and alcohol, but readily soluble in the presence of alkalies. The drug as determined by Abel and Rowntree (5) is non-toxic, non-irritant locally, and is excreted practically entirely by the kidneys, with extraordinary rapidity, appearing in the urine normally within a few minutes of injection. In alkaline solution a brilliant red color is produced which is ideally adapted for quantitative colorimetric estimations.

TECHNIQUE.

In our earliest work only the time of appearance, the time of maximum intensity of excretion, and the time of gross elimination were considered. In the course of the work it becomes evident that the color properties of this substance make it peculiarly well adapted for colorimetric methods of estimation, and for this purpose the Duboscq colorimeter was employed and has proven of the greatest value.

In order to obtain data of real value it is essential to any functional test to know not only the time of appearance of the drug in the urine, but to know exactly what part of the drug, a known amount of which has been administered, is recovered in a definite period of time.

Twenty minutes to half an hour before administering the test, the patient is given 300 to 400 c.c. of water in order to insure free urinary secretion, otherwise delayed time of appearance may be due to lack of secretion.

*Read at Ontario Medical Association, 1st June, 1911.

Under aseptic precautions a catheter is introduced into the bladder and the bladder completely emptied. Noting the time, 1 c.c. of a carefully prepared solution (6) of the phenolsulphonephthalein containing 6 mg. to the c.c. is accurately administered subcutaneously, intramuscularly or intravenously by means of an accurately graduated syringe. (We have used the Record 2 c.c. syringe which is graduated in fifths of a c.c.)

The urine is allowed to drain into a test tube in which has been placed a drop of 25 per cent. NaOH solution and the time of the appearance of the first faint, pinkish tinge is noted.

In patients without urinary obstruction the catheter is withdrawn at the time of the appearance of the drug in the urine, and the patient is instructed to void into a receptacle at the end of one hour and into a second receptacle at the end of the second hour.

A rough estimate of the time of appearance can be made by having the patient void urine without the use of the catheter at frequent intervals. In prostate cases it is wise to have the catheter in place until the end of the observation. The catheter is corked at the time of the appearance of the drug in the urine and the cork is removed at the end of the first hour and at the end of the second hour, each time the bladder being thoroughly drained. On many of the patients of this type on whom our observations have been made, a retention catheter has been in use as part of the routine treatment on account of the residual urines. When a catheter is to be employed it is well to previously have the patient under the influence of hexamethylenamine.

Each sample of urine is measured and the specific gravity taken. Sufficient NaOH (25 per cent.) is added to make the urine decidedly alkaline in order to elicit the maximum color. The color displayed in the acid urine is yellow or orange, and this immediately gives place to a brilliant purple red color when the solution becomes alkaline. This solution is now placed in a liter measuring flask and distilled water added to make accurately 1 liter. The solution is then thoroughly mixed and a small filtered portion taken to compare with the standard, which is used for all of these estimations.

The standard solution used for comparison consists of 3 mg. of phenolsulphonephthalein (or $\frac{1}{2}$ c.c. of the solution used for injection) diluted up to 1 liter and made alkaline by the addition of only one or two drops of 25 per cent. NaOH solution. This is a beautiful, purplish red solution, retaining its intensity of color for months, provided carbon dioxide from the air is excluded, or that it is kept slightly but definitely alkaline. The one solution, therefore, serves for an immense number of tests. All our estimations until recently have been made by means of the Duboscq colorimeter.

One cup of the colorimeter (right) is half filled with this standard solution used for comparison, which has just been described, and the plunger lowered so that the indicator reads at 10. A varying quantity (depending on the intensity of the color) of the diluted urine is placed in the other cup and the plunger manipulated until the two halves of the field are of an identical intensity of color. The indicator of the left plunger is now read, the fraction, as indicated by the Vernier scale, being taken into account. The estimation of the quantity present is then a question of simple arithmetic.

For instance, the left side reads at 20—the standard being placed at 10. In other words, it takes a column of fluid twice as long to give the same intensity of color as that of the standard, which, of course, shows that the solution contains only half as much dye. To obtain the percentage of dye excreted in the urine compared with the amount in the standard solution used for comparison, it is necessary to multiply the reading of the standard by 100 and divide by the reading indicated for the solution containing the urine. To return to our example, we have $\frac{10 \times 100}{20} = 50$ per cent. as much drug in the urine as in the standard solution used for comparison.

Recently the Helligehaemoglobinometer has been utilized. A standard alkaline solution 6 mg. to a liter is placed in one of the wedge-shaped cups which originally contained the solution for the estimation of the haemoglobin. The urine collected as in the other method is diluted to a liter and a small filtered portion poured into the rectangular cup. The wedge-shaped cup is now manipulated by means of the screw until the two sides of the color field are identical. The per cent on the scale is now noted. The number indicated is subtracted from 100 which gives the per cent. of phthalien excreted. This instrument is much cheaper than the Duboscq and approximately accurate (7).

When the urine collected has been made strongly alkaline, it is necessary to estimate the phthalein within a few hours as the red color fades gradually under these conditions. When it is desirable or necessary to defer the estimation for some hours or days, it is better to make the urine distinctly acid, under which condition the phthalein remains unchanged. It should, of course, be made alkaline again when the estimation is made.

EXCRETION IN NORMAL INDIVIDUALS.

The excretion has been studied in several hundred normal individuals. In our earlier work subcutaneous administration was used exclusively, the drug appearing in the urine in from 5 to 11 minutes, 40

to 60 per cent. (average 50 per cent.) being excreted in the first hour after its appearance in the urine, and 60 to 85 per cent for two hours. In health the elimination is practically completed in two hours, only a trace being present during the third and fourth hours.

Recently intramuscular (lumbar) and intravenous injections have been employed. The time of appearance following the intramuscular administration is practically the same as that after the subcutaneous, but the output averages 5-10 per cent. more for the first hour, while the range of variation in excretion in normal cases has been less owing to more rapid and more even absorption. Following the intravenous injection, the drug normally appears in from 3 to 5 minutes, and from 50 to 65 per cent. of the drug is eliminated in the first half hour, and 63 to 80 per cent. during the first hour. This rapidity of the excretion following intravenous administration is exceedingly striking, and when this method is employed, observations for half an hour only should be employed. In connection with ureteral catheterization this is a matter of great importance, as prolonged ureteral catheterization may be a matter of great discomfort to the patient. For general use, however, we advocate the subcutaneous or intramuscular method (the latter particularly when oedema is present), as the technique involved is much simpler and the results obtained are sufficiently reliable. The technique of the test is exceedingly simple. The injection is given, time of appearance noted, and collection of urine made for one or two hours. To each sample sufficient sodium hydrate is added to insure alkalinity and maximum intensity of color; then the urine is diluted to 1 liter, a small amount is filtered, the reading made, and percentage of drug excreted is calculated.

INFLUENCE OF AMOUNT OF URINARY SECRETION.

The excretion of the drug does not run parallel to the excretion of urine. It is immaterial as far as the excretion of the drug is concerned whether the urinary output is 50, 200, 400 or 500 c.c. Similarly the output does not seem to be much influenced by the previous administration of the different diuretics. Experimentally in animals it has been ascertained that some diuretics slightly decrease, while others slightly increase the excretion in striking contrast to the effect of these diuretics on the water output.

THE STUDY OF NEPHRITIS.

Heretofore functional tests have not been considered of any great value to the clinician in relation to nephritis. In fact hyperpermeability to methylene blue, indigo-carmin and rosoline has been shown to exist in acute and in chronic parenchymatous nephritis, while on the other

hand decreased permeability with slow appearance and prolonged excretion has been demonstrated in the chronic interstitial variety.

ACUTE NEPHRITIS.

An opportunity to study only four cases of acute nephritis has presented itself. One case of scarlatinal nephritis had a severe angina and exhibited evidence of grave toxemia. It was impossible to determine whether the toxemia was due to the nephritis or to the angina. One injection of 6 mg. of the phthalein was followed by the appearance of the drug in the urine in 23 minutes. Forty-four per cent. of the drug was excreted in the first hour. This patient recovered, and the nephritis completely cleared up in the course of a few weeks.

The other patient, with scarlatinal nephritis, was in bad clinical condition at the time of his first test. He had scanty urine of high specific gravity, smoky from blood and containing much albumin and many casts. The prognosis seemed bad.

The usual phthalein test was administered, the drug appearing in the urine in 22 minutes and only 4.8 per cent. being excreted in one hour. Three weeks later, the nephritis having almost disappeared and the clinical condition being greatly improved, as well as the condition of the urine, the test was repeated, showing the appearance of the drug in 7 minutes and an excretion of 38.1 per cent. for one hour. Six weeks later the patient was entirely well and excreted 50 per cent. of a 30 mg. dose in the first hour.

The third case, a boy of 7 years, was a case of nephritis of obscure nature associated with purpura haemorrhagica and profuse hematuria. The time of appearance of the phthalein was not obtained, but he excreted 19.4 per cent in the first hour and 19.1 per cent in the second hour. Death occurred suddenly five days later from a suspected internal haemorrhage. No autopsy could be obtained.

The fourth case, a boy, aged 8 years, was admitted with typical acute nephritis of a severe grade: the prognosis being considered unfavorable. The phthalein output on admission was 11 per cent. for two hours. Four days later the clinical condition was much better and the phthalein output had increased to 28.4 per cent. for two hours. Two weeks later the nephritis had practically cleared up and the phthalein excretion increased to 68.8 per cent. for two hours.

While no conclusions can be drawn from four cases, it is suggestive that in none of them was there increased permeability, but that on the contrary the permeability was markedly decreased when the condition was considered clinically grave.

CHRONIC PARENCHYMATOUS NEPHRITIS.

In all, 21 cases belonging to the clinical type of parenchymatous nephritis have been studied. These cases represent different grades of severity, and the duration of the disease varies from a few weeks to seven years.

In two very mild cases of short duration showing only slight oedema with albumin and casts, but with a normal urinary output, the time of appearance of the drug and the amount excreted was normal. In one of these cases the time of appearance was 8 minutes, and the output 52.5 per cent. for one hour. The second patient was a student who considered himself perfectly well, but in whose urine albumin and casts were discovered by chance. On close inspection a slight oedema about the eyes was detected. No other evidence or suggestion of the disease could be found. In this instance 53 per cent. for the first hour and 8.6 per cent. for the second hour was excreted following subcutaneous injection. After intravenous injection, 46 per cent. was excreted for the first half hour (slightly decreased) and 17 per cent. for the following hour and a half.

In cases of longer standing or where the disease is of ordinary severity, the time of appearance has always been delayed slightly (10-25 minutes) and the amount excreted is definitely below normal. In one patient who has been under constant observation for more than a year the time of appearance (20 minutes) and the amount excreted (20 per cent.) has remained practically unchanged. Clinically his condition is better than a year ago.

Another patient, age 30, admitted Nov. 25, 1910, with secondary lues and a definite parenchymatous nephritis of six weeks' duration showed an output of 47 per cent. for two hours at which time his urine contained 50 g. albumin to liter. On Dec. 10th his phthalein output was 51 per cent. and the albumin 25 grams to liter, while his general condition showed but little change. Because of the possibility of the nephritis being syphilitic in origin, 0.45 gms. of salvarsan was given intravenously. On Dec. 26th, his condition was definitely worse, urine decreased in amount and the albumin increased to 68 gm. to liter, the phthalein output dropped to 31 per cent. On Jan. 3rd, his clinical condition was very grave, albumin 96 gm. to liter and the phthalein excretion was 22.7 per cent. On Jan. 8th his condition was the same, and the phthalein output unchanged. But on Jan. 17th his clinical condition was improved, albumin decreased in amount, and the phthalein output increased to 43 per cent. On Feb. 7th the patient was again in good clinical condition, the albumin only 6 gm. to liter, while the output of phthalein increased to 52.7 per cent. The blood pressure throughout ranged from 80 to 110, and no eye changes were present. Although the phthalein output dropped

pari passu with the exacerbation of the clinical manifestations, yet at no point did it reach a level which would indicate an immediate danger, whereas, clinically, death was considered imminent.

Another interesting case is as follows: Mrs. S., age 57, admitted November 16, 1910, with an acute exacerbation of a chronic nephritis. Symptoms of mild uraemia were present, and the urine contained 7 gm. albumin to liter and many casts. The systolic blood pressure was 190 mm. Hg. Her phthalein output was 19 per cent. for two hours. She gradually becomes more uraemic, and two weeks later was definitely comatose. At this time her phthalein output was 20 per cent., although her clinical condition was considered very grave. In a few days she regained consciousness and shortly after left the hospital. Ten weeks later patient reported that with the exception of slight oedema and dyspnoea on exertion, all her symptoms had disappeared.

In the most severe grades of chronic parenchymatous nephritis or where the disease is of long standing and associated with secondary sclerotic changes, the output is reduced very markedly, and in some instances no trace of the drug can be found in the urine. Here also as in the interstitial type, the absolute failure of excretion, or the excretion of a mere trace, has been followed within a short time by death from renal failure. Some details regarding a few of these cases may be of interest.

Female, age 28, admitted August, 1910. History of oedema of face for over two years. Suffered some from headache. For a few months previous to admission had been unable to work on account of general weakness. On admission had nausea and occasional vomiting. Mentally clear. Marked anaemia. Some oedema of face. Urine contained large amount of albumin and numerous casts. Output of urine small. Phthalein test given and no trace of drug could be detected in the urine during the next three hours. She gradually became more uraemic, the nausea and vomiting becoming rather continuous, although mentally clear. Death occurred within four days. No autopsy was obtained.

Another case, one of syphilitic nephritis, was of rather peculiar interest. M. A., age 23, admitted October 24, 1910, exhibiting severe general anasarca and marked dyspnoea. Symptoms had existed for one month. Pulse small and of low tension. Some anaemia. No signs of uraemia. Heart was normal. The urine had 6 gm. of albumin to the liter, but no casts were found. Trace of sugar. Some days after admission hyaline casts were discovered. On November 8th the albumin had increased to 30 gm. to the liter although the dyspnoea was better and the general oedema somewhat decreased. The phthalein output was at this time only 6 per cent. for two hours. On November 14th the general

condition seemed about the same, but her phthalein output had decreased to a mere trace. The following day she became suddenly irrational and rapidly went into coma and died within twenty-four hours. Autopsy findings: syphilitic hepatitis, general amyloidosis, especially of kidneys and spleen, thrombosis of right renal veins and veins of left side of pelvis.

Although the number of cases of chronic parenchymatous nephritis has not been very large, sufficient data have been collected to indicate that the test is of decided value in revealing the functional efficiency of the kidney in this condition. In the mild cases very little disturbance of function is indicated, and it may be impossible from the test alone to differentiate this condition from albuminuria. In 21 cases of chronic P. nephritis tested, when there is a marked decrease in the phthalein output, marked renal changes are present, and when only excreted in traces or not at all a grave prognosis should be given even though no signs of uraemia exist.

CHRONIC INTERSTITIAL NEPHRITIS.

Twenty-two cases of the type clinically classed as chronic interstitial nephritis have been under observation. In many of these cases previous to the administration of the phthalein test no accurate idea of the degree of involvement of the renal function could be ascertained, even after the most careful clinical study. The phthalein test has proved itself of immense value in revealing the degree of destruction of the renal substance, and has demonstrated itself to be of extreme importance from the standpoint of both diagnosis and prognosis.

In most of the cases of this series the time of appearance has been markedly delayed, and the output of phthalein markedly decreased; where the output is lowest, the delay in appearance is most pronounced. The time of appearance, however, is not so important as the amount of excretion. (Of the four cases in which no drug at all or a mere trace was eliminated within the two hours following the injection, two died within a week, one within a month, and the other within two months, all with uraemia. In two of these instances no clinical evidence of uraemia was manifested at the time of the test, and the advanced degree of renal disease was not suspected until revealed by the test itself.)

S. B. G., age 55, Surgical No. 25, 174, admitted December 21, 1909, complaining of difficult and frequent urination. These urinary symptoms were dependent on prostatic enlargement, the residual urine amounting to 440 c.c. Patient was apparently in good physical condition, well nourished, but slightly anaemic. Urine slightly cloudy, acid, S. G. 1010, no sugar, slight trace albumin, and no casts. Urinary output 2000 c.c. in twenty-four hours, urea ranging from 20-30 gm. for twenty-four

hours. The phthalein test was given, a faint trace appearing in forty minutes, and at no time was more than the merest trace detected. Repeated subsequent tests yielded always the same result. One week after admission he began to exhibit signs of uraemia, which gradually increased until deep coma ending in death supervened. Autopsy: Both kidneys presented marked atrophy, neither organ weighing one-third of normal, a severe grade of interstitial nephritis being present. This case is of particular interest because of the fact that the urinary output, the urea, the total solids and the total nitrogen were normal, and casts were also absent.

The following is a history of a case in which the diagnosis was perfectly apparent clinically but in connection with which the test proved a striking confirmation as the phthalein failed to be eliminated.

Mrs. W., age 21, admitted November 7th, with symptoms of uraemia. Patient had had eclampsia in May, 1909, and had never fully recovered her former health. Suffered from frequent attacks of epistaxis, dyspnoea, puffiness of eyelids and oedema of ankles. On examination marked emaciation and pallor were noted. R. B. C. 1,900,000; Hb. 22 per cent.; high grade of choked disc; B. P. 230; temperature normal. Urine was somewhat decreased, S. G. 1013 to 1019, albumin 19 gm. to liter, no casts, acetone and diacetic acid positive at times.

The phthalein test was given the day after admission and showed entire absence of elimination during two hours.

Despite vigorous treatment, coma became deeper, and death supervened five days later.

Autopsy 3460 showed an extreme grade of interstitial nephritis with a superimposed acute haemorrhagic nephritis.

In the following case the diagnosis was exceedingly obscure until the evidence brought forward by the test was added. Before the administration of the test, nephritis was only one of many possibilities entertained.

Mrs. O., age 47, admitted March 23, 1911. In October, 1910, noted fatigue and dyspnoea on slight exertion, together with slight oedema of lower extremities. In December nausea and vomiting developed and have been present almost constantly since. On examination, patient was poorly nourished and showed marked anaemia. R. B. C. 1,500,000; Hb. 15 per cent.; W. B. C. 6000; slight increase in cardiac dulness, apex slightly down and out, slight systolic murmur in pulmonary area; no oedema of extremities. Urine: pale yellow, S. G. 1011, albumin—a trace, *no casts on repeated examination*. B. P. 135. Eye grounds: negative. Although nauseated she was mentally bright and seemed in no imminent danger. The phthalein test showed no output in three hours. Two days

later the patient became irrational, dying within forty-eight hours in uraemic convulsions. No autopsy was obtained.

The following cases shows even more strikingly the ability of the pthalein test to reveal the presence of nephritis in the absence of any definite clinical evidence.

L. G., age 12, admitted March 27, 1911, as an interesting case of diabetes insipidus. The past history contained nothing of importance except that large quantities of urine had been voided for some time and he experienced marked thirst. He was well nourished, not anaemic and apparently a normal looking boy. His B. P. ranged around 100 mm. Hg. Some thickening of the radial arteries was noted. No definite eye changes. The urine on admission was large in amount 2000-2500 c.c., clear, S. G. 1005-1010. *No albumin, no casts.* At this time no suspicion of nephritis was entertained. The pthalein test performed March 28th showed an output of only 7 per cent. for two hours. Three days later only 3 per cent. was excreted. With the exception of the pthalein findings absolutely no evidences of nephritis were present at this date. A week later he developed headaches, and a trace of albumin in the urine appeared. He rapidly became uraemic and died April 9, 1911.

Autopsy: A most intense grade of chronic interstitial nephritis was present, with almost complete disappearance of the cortex. A slight grade of acute nephritis was superimposed.

Chronic nephritis can exist over a long period without recognition, and may even exist in the absence of albumin and casts in the urine. The following in another case illustrating the presence of nephritis in the absence of positive clinical proof, and also the value of the pthalein test in revealing its existence.

F. G., age 71, who had had six previous admissions for malaria, febricula, acute rheumatic fever and arthritis deformans during the last five years, was again admitted November 7, 1910, for oedema of feet and legs, vertigo attacks of loss of consciousness. Numerous urinalyses during these admissions failed to demonstrate any anomaly except a trace of albumin at one single examination. An advanced arteriosclerosis and high blood pressure were recorded on previous admissions. The chest was emphysematous, the heart sounds distant. Pulse 52—regular. B. P. 220. Urine: pale, 1012, acid, albumin—occasional trace, no casts. Pthalein examination showed an output of only 5 per cent. for the first hour and 10 per cent. for the second, indicating a severe grade of nephritis. The next day definite signs of broncho-pneumonia appeared, and the patient died five days later. Autopsy: Atrophy of the right kidney as the result of an old thrombosis of right renal artery, with chronic diffuse nephritis on the left side, small granular kidney.

The following is an example of the difficulty encountered at times in differentiating clinically various forms of toxæmias from true nephritis with uræmia.

S. E., age 55, admitted January 3, 1911, in a drowsy toxic condition. Had a history of chronic bronchitis of long standing associated with dyspnoea. The present illness dated back two months, during which time the condition had become exaggerated. Temperature was 99-100 degrees. Blood pressure 160 mg. The physical examination of chest revealed a bronchitis and some myocarditis. The urine output was small, S. G. 1030 acid, albumin 4 G. to liter, hyaline and granular casts. The physician in charge made a note saying "patient is certainly in uræmia" and treatment for uræmia was instituted. A phthalein test, however, showed an output of 52 per cent. for two hours which indicated a function not markedly impaired. Some days later the temperature rose to 103 degrees and definite physical signs of a pneumonia became apparent. Patient recovered. We have had another almost identical case of pneumonia in which the phthalein cleared up the diagnosis.

URÆMIA.

In 21 cases under study uræmia has been present. Of this number in fourteen the uræmia was grave, the patients exhibiting nausea, vomiting, drowsiness or coma, and in several instances convulsions. In the remaining seven, mild symptoms only were present and had persisted over prolonged periods. Nine of the fourteen cases with grave uræmia died during the attack. *In eight of these cases the phthalein elimination was zero, or a faint trace only for two hours.* In the other case an acute exacerbation of chronic nephritis the patient excreted 201 for two hours. He died one week later. Autopsy: marked acute nephritis, superimposed on a slight chronic nephritis. Of the five cases recovering from their uræmia, the output in two instances was 20 per cent., the uræmia being the result of an acute exacerbation of a chronic nephritis. In two the output was 14 per cent., in both of these the uræmia was precipitated by a double pyelonephritis. The fifth was an acute exacerbation in a case of chronic pyelonephritis in a man previously having had a nephrectomy. This last patient has greatly improved, and at present has a two hour excretion of 13 per cent.

In the seven mild cases, exhibiting slight but persisting symptoms of uræmia, the excretion respectively was as follows: 10 per cent. in one, 7 per cent. in three cases, a trace in one, 2 per cent. in the other for two hours. Four of these died within three months of the performance of the test. Those living are still exhibiting evidences of chronic uræmia, four months having intervened in one instance.

In four cases not exhibiting uraemia at the time of the test, but in which the phthalein output was below 8 per cent. for two hours, one excreting 6 per cent. died within two months, and the others are still living, one four months, one two months, and the other three weeks, but all are exhibiting evidence of chronic uraemia.

THE STUDY OF CARDIAC AND CARDIO-RENAL CASES.

An attempt has been made to differentiate by means of this test between those cardiac cases with broken compensation or with passive congestion associated with the presence of albumin and casts in the urine and those cases in which cardiac insufficiency is associated with varying grades of true nephritis. In this connection 28 cases have been studied. In the first class in which the clinical evidence pointed to a pure cardiac disease and in which with the subsequent improvement in the cardiac condition, albumin and casts disappeared, the output in 9 cases was uniformly high, in fact 50 per cent. or over, with one exception. This class is illustrated by the following case:

Lizzie Weinstein, 11, Hebrew Hospital 2091.

C. C. General weakness.

P. H. Chorea two years previously.

P. I. Patient had chorea two years previously. On admittance she complained chiefly of general weakness. Six weeks ago patient began to have peculiar nervous manifestations, peculiar involuntary movements of arms only; this was followed by great lassitude, headache, vomiting and poor appetite. Fever 100 to 102 for weeks. Pulse 90-120.

On examination heart slightly enlarged, with diffuse apex beat, systolic murmur at apex transmitted to axilla and heard also at base, arrhythmia.

12-3-10. R. B. C. 2,456,000; W. B. C. 11,200; Hb. 52 per cent.

11-1-10. Urine 650 cc., smoky, faintly acid, 1018, albumin † † †, sugar 0, coarsely granular casts, some free R. B. C. Triple phosphate. Total urea output 9.8 gm. Total urea 12 gm.

11-30-10. 1360—1008—albumin †, phosphate and epithelial cells, leucocytes occur, finely granular casts.

12-6-10. 1400—1020—0—no casts—phosphate—urea 26.6 gm.

12-3-10. Phthalein test: 1st hour—69 cc., 1009, R. 38.5 per cent.
2nd hour—50 cc., 1009, R. 22.7 per cent.

61.2 per cent.

At the time of the test with a considerable amount of albumin and casts in the urine, the phthalein output was normal. Later albumin and

casts entirely disappeared and no suggestion of any disease other than endocarditis was present.

Diagnosis—endocarditis. Discharged in fine condition 1-23-11.

The phthalein output in 19 cases in the second class has shown varying degrees of reduction ranging from 15 to 40 per cent. Albumin or casts or both persisted in all these cases even after marked improvement in the cardiac condition and even on discharge.

The opportunity of comparing the result of the phthalein test with the findings at autopsy has been afforded but once.

H. B., 76710, 29 year of age, admitted January 20, 1911, complaining of severe dyspnoea and swelling of feet of which had existed for two weeks only. Physical examination revealed markedly increased cardiac dulness, mitral and aortic insufficiency, dilatation of the heart, some ascites, broncho-pneumonia, B. P. 190, moderate grade of secondary anaemia. Urine: high-colored, 1046, acid, albumin † † †, large number of hyaline and granular casts. Phthalein test showed an output of 26 per cent. for two hours. Patient died on the day following admission.

Autopsy: Chronic mitral and aortic endocarditis, chronic myocarditis, marked hypertrophy and dilatation of the heart, a moderate grade of chronic diffuse nephritis, with some superimposed acute nephritis.

Death, in this instance was in great part due to cardiac failure.

From a study of these cases we feel that the phthalein test will prove of value in determining to what degree renal insufficiency is responsible for the clinical picture in this class of diseases, but feel that a much larger series should be studied clinically and at autopsy before very definite conclusions can be drawn.

MISCELLANEOUS CASES.

A large number of miscellaneous medical diseases have been also studied from the standpoint of phthalein excretion, among the number being 10 cases of lobar pneumonia. In pneumonia the output is little, if any, decreased, and does not run parallel with the chlorid excretion.

Three cases of persistent albuminuria have shown a normal output. In no disease other than renal so far studied has a marked reduction of the phthalein excretion been encountered.

THE RELATION OF PHTHALEIN OUTPUT TO BLOOD PRESSURE, TO CHANGES IN THE EYE-GROUNDS, AND TO THE BLOOD PICTURE.

In the majority of cases of chronic nephritis in which the blood pressure has been high, the phthalein elimination has been markedly decreased, but no exact parallelism exists inasmuch as not a few instances have

been encountered in which the systolic pressure has been over 200 mm. Hg. and the phthalein output one-half of normal, while on the other hand there have been instances in which the blood pressure has been normal, while the phthalein output has been zero or nearly so,—the patients shortly after dying in uraemia. While a high blood pressure when present is considered of diagnostic and prognostic value taken in conjunction with other clinical data, yet many patients died of renal insufficiency and exhibited a blood pressure which was normal or practically so. Nor is the blood pressure, even when high, increased in inverse proportion to the decrease in renal function.

While in some instances marked changes in the eye-grounds, choked disc, tortuous vessels, haemorrhages, etc., have been present coincident with a very low phthalein output, in many cases even of the most advanced and even fatal nephritis, no changes whatever in the eye-grounds could be detected, the patient at the same time failing to eliminate the phthalein.

Moderate or rather severe grades of secondary anaemia in the absence of disease of the kidneys can be present without any diminution in the phthalein elimination; for instance, two patients, one with 2,500,000 red cells and Hb. 30 per cent., the other with Hb. 30 per cent., eliminated 61 and 57 per cent. for two hours respectively.

VALUE OF TEST FROM A SURGICAL STANDPOINT.

Through the encouragement of Dr. Young we have been enabled to study the phthalein excretion in a large series of cases of urinary obstruction, in order to determine the value of the test in revealing the functional capacity of the kidney in these cases. This is a consideration of grave importance in this connection, since the development of uraemia or renal failure has been responsible for a great part of the mortality following surgical interference.

As a result of obstruction in the lower urinary tract, pathological changes may occur in the ureters and kidneys, dilatation of the ureters, varying grades of hydronephrosis, and as a result of the continued high pressure, atrophy of the parenchyma of the kidney. Not infrequently infection occurs with the development of a pyelitis, a diffuse or localized pyelonephritis, or pyonephrosis. The occurrence of these complications is often difficult of recognition, and is often overlooked, particularly in the absence of symptoms of renal inadequacy. A large proportion of these cases of urinary obstruction have cystitis associated with albuminuria. The presence of casts in the urine is no contraindication to operation. The urinary output may be normal in many, also the urea and total

solids, and yet the patient may be on the verge of renal failure and disastrous results may follow surgical interference.

The test has been used in at least 150 cases of urinary obstruction, mostly cases of prostatic hypertrophy. The technique involved in these cases necessitates the use of a catheter, otherwise it does not differ from that described above.

In the majority of cases the test indicates a more or less degree of renal impairment, and taken in conjunction with the clinical condition it is of more value than the study of urine output, total solids, total nitrogen and urea estimation combined.

A marked decrease in the amount excreted invariably means severe derangement of renal function, which may be of either a temporary or permanent character. Under such conditions one should proceed with extreme caution and no surgical intervention should be attempted without further study together with preliminary treatment. Under this regime repeated functional tests will demonstrate eventually the nature of the derangement, for in true interstitial nephritis the output will continue low, whereas if the derangement is purely functional or secondary to pyelonephritis, usually improvement will follow as a result of the treatment and will be indicated by a decrease in the time of appearance of the drug and simultaneously an increase in the amount eliminated.

The functional derangement due to infection in these cases is a much more dangerous condition than is the presence of even a fairly advanced condition of interstitial nephritis. The use of the test enables one to select a favorable time for operation. In cases exhibiting a continued suspiciously low output, the use of nitrous oxide gas is suggested as preferable to ether in order to protect the kidneys. When only a trace of the drug continues to be excreted, operation should not be attempted at all except in an emergency, even though the patient presents no evidence of ureamia.

The test can be used to equal advantage preliminary to any surgical procedure where it is deemed important to know the true functional capacity of the kidneys.

Striking confirmation of the accuracy of the findings of the test was afforded by the following case:

T. B., age 37, admitted January 1, 1911, with vomiting and pain in epigastrium. Diagnosis: double renal calculi and pyonephrosis, uraemia. In 1903 patient had right renal colic for first time, following which he passed two stones. Since then he has had two similar attacks on the left side. For last three months he has had frequent attacks of pain on left side, dyspnoea, vertigo and vomiting.

On examination patient was found markedly emaciated, Hb. 50 per cent.; R. B. C. 300,000; W. B. C. 18,500. Kidneys not palpable; no tenderness. X-ray showed stones in both kidneys and in upper portion of left ureter. Urine: 1700 cc. in twenty-four hours, S. G. 1017, albumin * * and cloudy from pus.

Phthalein test January 2nd, no drug for two hours. Under forced water the urinary output increase and patient became less toxic, nausea and vomiting disappearing. Phthalein output was now 5 per cent. Two days later uraemic symptoms reappeared and the phthalein output was again zero. A double nephrotomy under gas was rapidly done in the hope that some relief might be thus secured. Both kidneys were found to be merely thin-walled sacs filled with calculi and pus. Patient died in uraemic convulsions in less than twenty-four hours.

TECHNIQUE OF THE PHTHALEIN TEST AS APPLIED TO ESTIMATION OF THE FUNCTION OF THE INDIVIDUAL KIDNEY.

Functional tests have already demonstrated their great value in this connection. But they have at most been able to determine only the relative working capacity of each kidney and have shed very little on the absolute functional capacity of each organ.

The phthalein test in association with ureteral catheterization has been used in 70 cases of unilateral or bilateral disease, the technique being as follows. In most of these the subcutaneous administration was used. Recently, however, the intravenous method of administration has been employed, whereby the time necessitated for observation has been reduced to half an hour. Where it is desirable to determine whether the supposedly healthy kidney can assume sufficient function to permit of the removal of the other kidney, only a half hour period of observation is necessary.

TECHNIQUE OF THE PHTHALEIN TEST AS APPLIED TO SURGICAL DISEASE.

Twenty minutes previous to examination 600 to 800 cc. of water is given to patient in order to insure a free flow of urine. The ureters are then catheterized.

As it is essential to collect all the urine secreted by each kidney during a definite period of time, in order to do accurate quantitative work, a form of ureteral catheter especially devised for this purpose has been used. The flute and catheter of Albarran, No. 6 or preferably No. 7, has been found to be most satisfactory. The catheters which have only side openings and no end openings cannot be depended upon for this pur-

pose. In females, where the Kelly method of cystoscopy can be employed, it is possible by means of very large catheters to obturate the ureter and to secure total secretion in this way, but in males these large catheters cannot be used because they necessitate too large an instrument.

The catheters are passed up into the ureters to a distance of four inches. The cystoscope is then withdrawn, leaving the ureteral catheters in position. A tape is always tied to the right catheter as a means of identification. A small ureteral catheter is now passed into the bladder and the bladder thoroughly emptied, so that leakage, should it occur, can be detected. A specimen of urine is then collected from each side for routine clinical and microscopical study.

The time of injection is recorded, as is also the time of the appearance of the drug on each side. Starting from the first time of appearance the collection is then continued for one hour following subcutaneous or intramuscular injection, but only for one-half hour when the intravenous method of administration has been employed. The quantity of urine is noted, also the specific gravity. The amount of drug in each specimen is then estimated by the technique described above.

The application of the phthalein test does not complicate or unnecessarily prolong the time of catheterization, for it is necessary, as Albarran has shown, to collect the urine for a considerable period of time if determination of the work done by each kidney as regard to the total solids, urea, etc., is to be relied upon.

RESULTS OBTAINED WITH THE PHTHALEIN TEST.

In normal cases the time of the appearance of the drug from the two sides has been almost always the same, and in the majority of cases this has been five to ten minutes following subcutaneous, and three to five minutes following intravenous. The time of appearance of course will vary somewhat with the rate of urinary secretion. Normally the amount excreted by each kidney will be practically the same.

The series of cases studied include tubercular or pyogenic infection, unilateral or bilateral, calculi, hydronephrosis, hypernephromata, etc. (8).

UNILATERAL OR BILATERAL SURGICAL DISEASES OF THE KIDNEY.

It has been demonstrated that the time of appearance and the percentage output is practically the same for the two healthy kidneys. When one kidney only is diseased, the time of the appearance of the drug is delayed on the diseased side and the amount excreted is not only relatively but absolutely decreased. The amount of delay in the time of appearance is comparatively of little value. Reliance is only to be placed

upon the quantity excreted during a period of one-half or one hour, depending on the method of administration.

Although in the majority of these cases of unilateral disease the combined output is equal to that of two normal kidneys, the greater part of the excretion is shown to be performed by the healthy kidney. In proportion to the decrease in function on the diseased side, approximately there is a proportionate increase in the function on the healthy side. In such cases following nephrectomy the remaining kidney eliminates after the lapse of two or three weeks an amount of drug which is normally excreted by two healthy kidneys. In all cases studied the output from the remaining kidney has been greater than the combined output from the two kidneys prior to operation.

In bilateral disease it has been found possible to determine the individual function (absolute or relative) of each kidney. It is in this class of cases particularly that the shortcomings of other functional tests have been most apparent, as one kidney may be doing twice or three times the amount of work of the opposite kidney and still be unable to assume the additional work of the other kidney. It may be doing the major part of the work at the expense of all or nearly all of its reserve power, but the phthalein test determines whether the kidney has a functional capacity which is normal, less than or greater than normal and to what degree. In two cases of double renal tuberculosis in which the amount of pus from each side was practically the same, the test permitted it to be determined that one kidney in each instance had a function greatly in excess of the other, indeed sufficient function capacity to allow of successful nephrectomy, marked improvement in general condition occurring subsequently in each case.

The test has been used by us simultaneously with cryoscopy, phloridzin, indigo-carmin and the polyuria test of Albarran. No particular advantage was added by combining with one or all. Indigo-carmin and pherolsulphonophthalein can be combined as follows: Following the appearance of phthalein after injection, 5 cc. of 4 per cent. indigo-carmin suspension is injected into the gluteal muscles and the time of appearance in the acid urine noted. While the amount of phthalein excreted can be estimated with a fair degree of accuracy in the presence of indigo-carmin by rendering the urine alkaline and boiling, on the other hand the amount of indigo-carmin excreted can be estimated after acidifying with HCl or H₂SO₄ at the best only roughly, and occasionally not at all. When the two tests are used simultaneously the whole test is complicated with the introduction of no advantages and some disadvantages.

CONCLUSIONS.

1. The phenolsulphonephthalein as used by us has many advantages over all other functional tests so far proposed.

2. Phenolsulphonephthalein itself is better adapted for use as a functional test than any other drug previously employed for the same purpose, on account of its early appearance in the urine and the rapidity and completeness of its elimination by the kidney and the reliance to be placed on its findings.

3. The method of quantitative estimation of the amount of drug excreted is simple and exceedingly accurate.

4. It is of immense value from a diagnostic and prognostic standpoint in nephritis inasmuch as it reveals the degree of functional derangement in nephritis whether of the acute or chronic variety.

5. In the cardio-renal cases so far studied the test has proven of value in determining to what degree renal insufficiency was responsible for the clinical picture presented.

6. The test has proven of value not only in diagnosing uraemia from conditions simulating it, but has also successfully indicated that uraemia was impending when no clinical evidence of its existence at the time was present.

7. The test has proven of great value in revealing the true renal condition in cases of urinary obstruction. It is here of more value than the urinary output, total solids, urea or total nitrogen, and enables the surgeon to select a time for operation when the kidneys are in their most favorable functional condition. The improvement in the renal condition in cases of urinary obstruction following the institution of preliminary treatment is strikingly indicated by this test.

8. In unilateral and bilateral kidney disease the absolute amount of work done by each kidney as well as the relative proportion can be determined when the urines are obtained separately.

It is with the greatest pleasure that we thank Dr. Young for his early and continued interest in this work and for the generous supply of clinical material referred to us by him, to Dr. Barker to Dr. Thayer and the other members of the hospital medical staff for the opportunity of studying the cardiac and nephritic cases, to Dr. F. W. Hobleman for his valuable assistance in carrying on the work, and to Dr. Dunning of the firm of Hynson and Wescott for kidney, furnishing us with sulphonephthalein used throughout this study.

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- (1.) Rowntree and Geraghty: *Jour. of Pharm. and Exper. Therapeutics*, Vol. I., p. 579.
- (2.) Rowntree and Geraghty: *Annales des Maladies des Org.-Gen. and Trans. Assoc. Amer. G.-U. Surg.*, 1910 (not yet published).
- (3.) Detailed reports of our later studies will shortly appear.
- (4.) *Amer. Chem. Jour.*, Vol. VI., 280.
- (5.) *Jour. of Pharm. and Exper. Therapeutics*, Vol. I., p. 231.
- (6.) This solution is obtained as follows: 0.6 gramm of phenolsulphonephthalein and 0.84 cc. of 2N NaOH solution are added to 0.75 per cent. NaCl solution. This gives the mono-sodium or acid salt, which is red in color and which is slightly irritant locally when injected. It is necessary, therefore, to add 0.15 cc. more of the 2N hydroxide, a quantity sufficient to change the color to a beautiful Bordeaux red. This preparation is non-irritant.
- (7.) Fairly accurate estimations, however, can be obtained by means of graduated cylinders—equal quantities of the standard solution and the diluted urine being used in separate cylinders and the denser solution being diluted until the colors become identical. The amount of drug in the solution being known, the amount in the urine can be readily calculated.
- (8.) The details concerning 42 of these cases are considered in previous communications—*Trans. Am. Asso. G.-U. Surgeons*, 1911, and *Annales des Maladies des Organes Genito-urinaires*, Feb. and Mar., 1911.

AIDS IN SURGICAL DIAGNOSIS OF KIDNEY AND BLADDER.*

By J. K. McGREGOR, M.D. Hamilton.

IT is my purpose to draw your attention to information which may be derived from direct methods of examination rather than from the case history.

Recent improvements in the x-ray and cystoscope and the technic of their use have opened up fresh fields of diagnosis and the surgeon is given an earlier and more accurate picture of the disease, from which to draw conclusions.

A modern x-ray apparatus will show a stone in the urinary tract in 90 per cent. of cases whatever its chemical composition.

It is to the cystoscope, however, we owe the most, for it is by this instrument we reach the kidney by catheterization and gain many kinds of useful information.

The scopes I use is an Elsiner and a Nitze, and I find that they cover most requirements.

CYSTOSCOPY:

Preparation of patient:—A general anaesthetic is rarely needed; $\frac{1}{2}$ gr. morphia may be given hypodermically before examination. An

*Read at the Meeting of the Ontario Medical Association, May 31st and June 1st, 1911.

opium suppository may be used. As a local anaesthetic I use alypin $1\frac{1}{8}$ grs., several tablets being applied by an applicator to the posterior urethia. Novocaine is also used for this purpose. The meatus may require a 20 per cent. cocaine solution, and it may have to be incised.

The patient is in the recumbent position, hips slightly elevated. The parts washed and the rest covered with a sterile sheet. All instruments catheters, etc., are boiled except the scope which is sterilized in a strong carbolic solution. When the instrument is introduced, which can usually be accomplished without much trouble, the water is turned on, the bladder well washed out, the window inserted, the light turned on and the viscus inspected in detail. The meati are located and calculi and foreign bodies looked for. A calculus is very easily seen and diagnosed. The same thing may be said of various forms of cystitis. They become familiar after a short experience with the instrument.

The diagnosis of vesical tumors can be made by the cystoscope alone. With its aid we may accurately determine their size, location, character, number, and with a forceps snip off a piece for microscopic examination.

The commoner forms are the papillomata and carcinomata, and a less frequent form the sarcoma. The liability of these papillomata to recur after removal has led many to believe them malignant.

Of five vesical tumors I have seen in my own practice, four have shown malignancy microscopically. Young, of Baltimore, says that 90 per cent. of vesical tumors in patients over 50 years of age are malignant. The Mayos have had nearly the same experience. They say that of the cases which are approached by the transperitoneal route, 10 per cent. have already metastases in the liver at time of operation.

Many authorities, however, notably Bier and Keys of New York, consider these growths benign mostly, and during the last year have been treating them with the high frequency current.

The cancroidal tumor is fortunately uncommon, for it gives so few clinical symptoms that the surgeon always arrives too late. It shows an infiltrating base, which can be felt per rectum, and around its base necrotic areas are seen on inspection. The papiloma or carcinoma gives a characteristic appearance. They may be single or double, pedunculated or warty. The villi may usually be seen to float back and forth in the water currents, and they have been said to look like "finger ends." The tumor usually bleeds when touched with the beak of the scope. Necrotic areas may be seen, and they are the first evidences of malignancy.

If we are to believe with Young, Mayos and others that these tumors are mostly malignant, we cannot use the cystoscope too early in a case of haematuria, especially in an adult. The value of meato-

scopy or the appearance of the ureteral opening is of great value when combined with other signs. Thus tuberculosis of the corresponding kidney will likely be shown by a red swollen orifice hanging from which may be necrotic tags. The same is true of pyelitis. The negative evidence should, however, not be taken for too much. Any blocking of the ureter will show a gaping of the meatus.

The character of the output as observed through the scope may be seen to be turbid or haemorrhagic if pus or blood is present in any quantity.

Ureteral catheterization is fairly easily accomplished in a normal bladder. Difficulty may arise in cases of cystitis where the meati have been drawn out of their normal position or are hidden behind an elevated trabecula.

Hemorrhage and clots may make the procedure very troublesome. In the passage of the catheter information may be gained of the presence of complete or partial obstruction of the ureter.

This is usually caused by stone. I have seen complete obstruction, however, caused by tubercular ulceration. Dr. Kelley uses wax tipped catheters for location of calculi. Zebra catheters marked in centimeters to estimate the length of catheter passed will show either an obstruction or a dilated pelvis, the normal length being from 32-38 centimeters. In radiographic work the catheter carries a metal stilette. Most recent works show plates where shadows some distance from the wire stilette might have been mistaken for ureteral calculi had not the stilette been used. The output of the two kidneys is collected in separate sterilized test tubes for macroscopic and microscopic appearances. Examination of the sample for T. B. should only be done by an expert.

Note should be made of the way the drops come from the catheter. When a hydronephrosis is drained, the drops come fast at first and then slowly and without a little jerk with which the normal kidney ejects its contents. The aid acquired by the forcible distension of the renal pelvis by means of a solution injected through the catheters is striking. A solution of boracic acid colored with methylene blue is used. The coloring is done to check any back flow along the outside of the catheter. The solution is slightly warmed, sterilized, and introduced with a graduated, sterilized syringe.

Normally the renal pelvis will contain from 7-15 c.c. According to Braasch "A renal pelvis which holds less than 3 c.c. indicates a contracted pelvis, usually stone.

A pelvis containing between 25-40 c.c. indicates some nervous disorder.

A pelvis containing between 50-150 c.c. indicates hydronephrosis which can usually be relieved without a nephrectomy. A pelvis containing more than 150 c.c. will usually require a nephrectomy."

The injection should be made slowly and stopped as soon as pain is felt.

The relationship between the pain produced and the pain usually felt by the patient should be carefully noted. Upon this sign alone I have seen hydronephrosis thrown out of a differential diagnosis and operation later on reveals the true condition as a post cœcal appendix.

The functional activity of the kidneys as estimated by the examination of the secretion from the separate sides can be accomplished by several methods and should always be done when a nephrectomy is contemplated.

Of the methods in vogue:—

Cryoscopy or the estimation of the freezing point of the urine has been of great interest to scientific workers. Its value is doubtful and its technique too elaborate for practical work. It has been tried and discarded by most authorities.

The Injection of Indigo Carmine, 0.16 grams in normal salt solution, preferably into the gluteal muscle, will normally show in the urine in from 10 to 12 minutes. If after this time only a green color appears and is not intensified, it demonstrates some functional change in the kidney. The length of time it takes for the color to appear and the intensity of the color being the important points in the test.

The Phloridzin test or the production of temporary glycosuria by means of an injection of 0.01 gram phloridzin in aqueous solution is the one most used. The urine is examined 10 minutes after the injection and then every five minutes. Normally sugar appears in 10 minutes. The longer it takes over this time the more should we figure on a functional derangement in the kidney of that side.

The estimation of the electrical conductivity of the urine is also too elaborate a test for practical use.

Pyelography or the radiography of collargol injections into the ureter and renal pelvis was first suggested by Prof. Voelcher, of Heidelberg, four years ago.

The application of this scientific procedure owes its advancement to Dr. Braasch, of the Mayo clinic, who has suggested its use in the various kidney lesions and also in their differentiation from extra renal conditions. The patient is cystoscoped, catheterized and a 5-15 per cent. solution of collargol injected slowly while the radiograph is being taken. The injection is stopped as soon as pain is felt. No harm is done by the injection. In case of an operation following, union by first intention is not interfered with. A large hydronephrosis may take several ounces.

It will show a large, clear shadow with a distinct margin. A pyelitis with abscesses invading the cortex will show an irregular margin to the collargol shadow. This may be seen in T. B. kidney. The various dilatations of the ureter, whether acquired or congenital may be easily mapped out, and solitary kidney and malformations diagnosed. A stone in the pelvis will show but dimly through the collargol shadow or be altogether obliterated. Cortical calculi, however, are seen and their relative positions definitely defined.

It is in the differentiation between renal and extra renal shadows that the most valuable information is acquired, such as intestinal tumors, hypernephromata, and especially gall stones.

Even where a gall stone shadow is in such a position as to appear to be renal, stereoscopic radiographs have been used within the last year which show the relative positions and clears up the diagnosis.

The advances along this line together with the fact that year by year more surgeons are giving attention to the subject, has brought us to that point where we no longer excuse those lapses in urinary diagnosis which were formerly accepted or condoned as necessarily incidental to medical practice.

In discussing this paper Dr. Warner Jones, Toronto, said that the cystoscope should only be used in conjunction with other means of diagnosis; such as rectal examination, x-ray and all other means at our disposal. By rectal examination one could tell the condition of the prostate, seminal vesicles, thickening of the ureter, thickening and malignancy of the bladder, etc.

The best cystoscope for the general practitioner is the examination cystoscope, the catheter one causes haemorrhage in the male owing to its large bulb. Before using, inject a 2 per cent. solution of cocaine, leave it for two or three minutes and then withdraw slowly so as to leave a little in the prostatic urethra.

In case of haemorrhage we find trouble in using the cystoscope and is of little value in symptomless haematuria so frequent in interstitial nephritis. The value of the cystoscope was not so much in diagnosing tuberculosis of the bladder or kidney as in showing if the other kidney is fit for work in case of nephrectomy.

Dr. E. E. King said that the technique of distending the bladder is very important on account of the folds of mucous membrane; we should use the same amount each time, from four to six ounces.

Dr. Rachel Todd has been appointed by the Board of Education for Toronto to succeed Dr. Helen MacMurchy as one of the Public School Medical Inspectors.

REPORT OF AN OPERATION FOR REMOVAL OF A CALCULUS
FROM THE PELVIC PORTION OF THE URETER.

By S. M. HAY, M.D., C.M., Toronto.

MR. B., a man 35 years of age, had been suffering for a year with something like renal colic of the left side. He was unable for business, and was fast becoming an invalid. He had been going from one physician to another without giving any of them a very fair trial and without getting much relief. I saw him first on March 12th, 1910, in consultation with Dr. T. J. Page of this city. In our examination we found an increased area of dulness in the region of the left kidney. Our provisional diagnosis was a stone in the kidney or ureter, and we advised an x-ray, which was made the next day by Dr. Harvey Todd. The plate was a good one and showed a stone in the upper and left portion of the bladder, well up towards the summit. The skiagraphist said there was no doubt of there being a calculus in the bladder, and that the kidney and ureter were free. I was still somewhat in doubt, and went again to the hospital and re-examined and questioned the patient. He had now the ordinary symptoms of stone in the bladder. I am not unmindful of the fact that a stone impacted in the lower end of the ureter generally gives rise to vesical symptoms, such as painful and frequent micturition. This patient had now those bladder symptoms.

On March 16th, with the x-ray plate before me I opened the bladder, suprapubically, assisted by Dr. Page. On introducing my fingers into the bladder I, at first, felt no stone at all, but on pressing my fingers high up and well to the left side of the bladder I detected a stone which for the moment I thought was encysted in the bladder wall, as there was a considerable mass of tissue between the examining fingers and the foreign body. I soon decided that it was in the ureter, probably an inch or two from its bladder end. To remove this stone through the bladder was out of the question, so I pressed hard on it with the fingers of my left hand in the bladder and was able to push it well out to the left side of the pelvis, and with the scalpel in my other hand I made a careful incision through the abdominal wall close to the inner surface of the ilium. In this way I cut directly down on the calculus with the satisfactory guide of my fingers steadying it during the work. I was careful to get well behind the peritoneum, and by shoving it forward I was able, with comparative ease, to reach the ureter without injury to the peritoneum itself.

The stone was a very large one. At this writing I measure it and find it is one inch long, and to its present length we should add about one-sixteenth of an inch for chips broken off during extraction. It is $\frac{5}{8}$ of an inch across.

Primary calculi of the ureters are doubtless rare. They usually descend from the pelvis of the kidney, become lodged in the ureter, and then steadily increase in size. If a stone does not escape into the bladder soon after entering the ureter, there is no hope of it doing so later on.

I did not stitch up the opening in the ureter. Perhaps I should have done so. However, a ureter injury usually heals well and permanently. It did so here. I placed a rubber drainage tube down to the wound in the ureter with a strip of gauze beside it. The wound was closed around this in the usual manner. The bladder opening was closed completely with a drainage tube down to the bladder wall.

The same evening urine was passed by the urethra, and considerable bloody urine from the ureter. The patient made a good recovery, leaving the hospital in about four weeks with the wounds healed. Dr. Page tells me he still remains well.

I have learned from this case how easy it is for a stone in the pelvic ureter up behind the bladder to be mistaken for one in the bladder itself—and also how much easier it is to reach the pelvic ureter extra-peritoneally when it, with the stone it contains can be pushed away out to the side of the pelvis.

This leads to the questions,—1st. Would it be well in certain cases to deliberately open the bladder as a part of our method in operating for stone in the pelvic portion of the ureter? 2nd. Might we not, with advantage, in other cases of a similar kind, open the abdomen, locate the calculus and push it away out to the side of the pelvis and deal with it as in the case I have related? From my experience in this case, I am inclined to think that in certain cases the suggestion is worthy of a careful consideration.

550 Palmerston Boulevard.

DEGREES AT QUEEN'S.

The following degrees of M.D. and C.M. are announced at Queen's University: L. De la Matter, Ridgeville; K. V. Overend, Peterboro; J. G. Young, Cypress River, Man. An interesting feature in connection with the Fall term will be the laying of the corner stone of the Nicol Hall, the new metallurgy building, on Oct. 18, by Dr. Jas. Douglas, of New York City.—*British Medical Journal*.

THE AMERICAN PROCTOLOGICAL SOCIETY,
26th and 27th June, 1911.

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ABSTRACT OF PAPERS.

HOW CAN AN INFECTED SIGMOID DIVERTICULUM BE THE CAUSE OF A
RETRO-PERITONEAL ABSCESS?

By DR. A. TEIRLINCK, of Gand, Belgium.

In the present state of abdominal surgery the appendix is frequently regarded as the chief cause of all abdominal troubles.

Recently numerous works have been published concerning sigmoiditis and perisigmoiditis. Diverticular abscesses are not as frequent as appendicular abscesses. It should be borne in mind that the sigmoid is often located in the right iliac fossa and diverticular abscesses may be mistaken for appendicular trouble.

In the young the sigmoid flexure is free and communicates with the retro-mesenteric and pre-aortic cellular tissues by the tissues of the meso-colon. Infection can be transmitted from the diverticula into the retro-peritoneal cellular tissue by three means,—the connective tissue, the lymphatic system, and the venous blood-vessels.

In adults the sigmoid is adherent to the posterior abdominal wall, and in such cases there is another source of infection,—an external one, due to the numerous anastomoses between the meso-colic glands and the parietal lymphatic system and between the sigmoid blood-supply and that of the retro-peritoneal region.

SOME OBSERVATIONS UPON THE SURGICAL ANATOMY AND
MECHANISM OF THE COLON.

By GRANVILLE S. HANES, M.D., of Louisville, Ky.

Until comparatively recent years, diseases of the colon and sigmoid, and the surgical anatomy of each, received but scant attention. Recently, however, much valuable information upon this subject has been developed. Robert Coleman Kemp in his work on Diseases of the Stomach and Intestines says that Dr. J. M. Mathews was the first to call attention to sigmoiditis and diverticulitis of the sigmoid.

The entire length of the large bowel in situ is found to be much shorter than when it is dissected from its attachments. An ordinary thirty-inch colon tube has sufficient length to extend around the lumen of the large bowel to the cecum. While this has not been done in the living individual it has been done in the cadaver, and radiographs of the same are on record.

It is almost universally believed that ordinary colon tubes can be manipulated in such a way as to traverse the entire course of the large bowel around to the cecum. It has been proven by a number of investigators that such an achievement is impossible in the normal bowel. The average length of the sigmoid is about eighteen inches, and this being a floating portion of the large gut it is almost impossible for an instrument to pass beyond the middle half of the sigmoid. Should such be possible and the tube enter the descending colon it would be a physical impossibility for it to pass either the acute angle at the splenic flexure or the hepatic flexure. The failure of instruments to pass high into the bowel has been demonstrated by x-ray pictures.

Dr. Hanes demonstrated the difficulty in passing any instrument through the hepatic and splenic flexures by introducing a thirty-inch, No. 20, French, soft rubber, catheter into the caput coli in an old appendicostomy case. He failed by any kind of manipulation to pass the catheter through these flexures. The tube was allowed to remain in the head of the colon for twenty-four hours with the hope that peristalsis would carry it around, but this failed. After manipulating the second time three hours later, four inches of the catheter appeared through the anal opening.

He forced bismuth solution into the head of the colon till the wall of the gut was thoroughly distended and then Dr. E. Bruce made a skiagraph. No regurgitation into the ileum occurred. This experiment was repeated a number of times with the results as above given. If the ileo-cecal valve allows no reflow into the ileum, then exceedingly large amounts of water injected into the bowel are retained in the large gut, and not a part of the amount passed into the small bowel as is supposed by some.

In an old appendicostomy case, with the patient on the left side, coal-oil was poured into a colon tube that had been introduced three inches into the rectum. In six and a half minutes the oil was flowing out of the appendicostomy opening. The amount employed was thirty ounces. This clearly demonstrates that liquids will easily pass around the entire colon without flowing through a tube. The point is also made that coal-oil is much less irritating to the mucosa than plain water or ordinary aqueous solutions.

The capacity of the large bowel in situ was measured by temporarily closing the opening of an appendicostomy case and allowing coal-oil to flow into the rectum as long as the patient could tolerate it. At a later date the same experiment was made by allowing oil to flow into the head of the colon. About the same amount of oil was received in each case. After making the same experiments in other cases it was

decided that the average large bowel had a capacity, varying between fifty and sixty-four ounces.

The capacity of the rectum was ascertain by inverting the patient and placing a colpeurynter at the junction of the sigmoid and rectum, just within the sigmoid. The colpeurynter was then distended with air until no fluid could pass into the sigmoid. Coal-oil was allowed to flow into the rectum till no more could be received. It was then drawn off with a catheter and the average amount was found to be between fourteen and seventeen ounces.

He insists that the Inverted Position (Hanes) is much to be preferred by both patient and operaor when any kind of illuminating instruments are to be employed in the rectum or sigmoid.

HAVE WE AN IDEAL OPERATION FOR INTERNAL HEMORRHOIDS.

By A. B. COOKE, M.D., of Nashville, Tennessee.

An ideal operation for internal hemorrhoids must embody the five following surgical principles and precepts:—

1. Complete hemostasis.
2. Immediate closure of the operative wounds.
3. Preservation of the function of the parts.
4. Permanency of cure.
5. Due consideration of the factors of safety, simplicity of technic, time required for recovery, and the amount of post-operative discomfort.

The ligature operation violates principle 2.

The clamp and cautery operation falls short with reference to the fourth class of principles in each of its several points.

The Whitehead operation violates principles 1, 3, and 5, and is, moreover, an unnecessary and unjustifiable procedure.

The operation by means of Earl's clamp is a modification of the Whitehead method and a vast improvement upon it, but is apt, likewise, to violate principle 3.

Pennington's enucleation operation is open to criticism under classes 1 and 5 of the surgical principles. In spite of its ingeniousness, it is dangerous.

The Clamp and Suture operation described by the author fulfils all conditions, and is entitled to be considered the most nearly ideal of any yet devised.

A new hemorrhoidal clamp designed to facilitate the last named operation was presented and strongly recommended.

ETIOLOGY OF CONSTIPATION.

By HORACE HEATH, M.D., of Denver, Col.

Dr. Heath mentioned two groups—miscellaneous and mechanical. Under miscellaneous, the author regarded heredity as unimportant, but

attention was called to the faulty instruction of children in certain families. He stated that the constipation of infancy was due to undeveloped muscles, and of old age, to inactivity and atonicity.

Under mechanical causes he considered,—diet, sedentary life, abnormal positions, angulations, coloptosis, and hypertrophy of the rectal valves.

The predisposing diseases mentioned were colitis, stricture, proctitis, fissure, hemorrhoids, fistula, polypi, enlarged prostate, and malignant growths.

PHYSIOLOGY OF CONSTIPATION.

By SAMUEL T. EARLE, M.D., of Baltimore, Md.

In reviewing the Physiology of Constipation in the symposium read before the American Proctologic Society, June, 1911, Earle calls attention to the sensibility of the alimentary canal in connection with its bearing on constipation. It has been shown that the stomach and intestines are quite insensitive to tactile and thermal stimuli, but that the esophagus and anal canal are sensitive. The whole of the alimentary canal is, however, sensitive to distension, which produces at first discomfort and subsequently pain. The rectum appears to be more sensitive than the rest of the intestines to distension, so that a large fecal mass produces more discomfort when lodged in the rectum than in any other situation. As a result of this, the normal accumulation of feces in the pelvic colon is unaccompanied by any discomfort, whereas,—the entry of feces into the rectum at once produces a sensation, which acts as a warning that defecation is necessary. The discomfort produced by the presence of a large mass of feces in the rectum is partly due to the pressure it exerts on the upper extremity of the sensitive anal canal. Prolonged retention of feces in the rectum leads to a blunting of its sensibility, so that comparatively little local discomfort is present in most cases of confirmed constipation. But in acute cases or cases of recent origin, in which the rectum is distended with feces, much discomfort and occasionally severe pain is experienced. On the other hand, even a very large accumulation in the pelvic colon produces little or no discomfort in the intestine itself.

A large fecal accumulation in the rectum presses directly upon the anterior primary divisions of the third, fourth and fifth sacral nerve routes, as they emerge from the sacral foramina. It may therefore lead to neuralgic pain referred to the sacrococcygeal region. It is liable to cause suffering more from its constant presence than its severity; it is often as severe when the patient lies down as when he takes exercise, but some relief follows flexion of the lumbar spine. The muscles of the buttocks and back of the thigh, which receive a small part of their sensory

and motor supply from the third sacral nerve route, may be the seat of similar pain. Neuralgic pain or parasthesia, in the form of tingling or a sensation of heat or cold may occur, in the course of the sciatic nerve, in the back of the thigh, and occasionally the sensation of cramp in the calf is produced. Pain is also occasionally felt in the hip-joint, it receives part of its nerve supply from the third sacral nerve. The roots which supply the muscles of the front of the thigh, are situated out of reach of the distended rectum, so that in the exceptional cases in which pain is produced by constipation in his situation, it must be due to pressure exerted by a fecal mass in the iliac colon on the anterior crural nerve; and is accordingly only observed on the left side.

That these neuralgic pains are probably due to the direct presence of a large and hard mass of feces, on the sacral nerve-routes is shown by their instantaneous disappearance on completely evacuating the rectum by enemata, a form of treatment which was already advocated for sciatica by Columnius, of Naples, at the end of the eighteenth century.

Possibly the erections and seminal emissions, and the frequency of micturition and nocturnal incontinence, which occasionally result from large fecal accumulation in the rectum, are due to direct irritation of the third and fourth sacral nerves, and are not reflex in nature. The spasm of the sphincter ani and levator ani muscles, which has already been described as an occasional complication of the fecal impaction in the rectum, which occurs in constipation, may perhaps be in part due to pressure on the fourth sacral nerve routes.

Neuralgia of the testicles in men and dysmenorrhea in women are sometimes increased by the direct pressure in the rectum on the nervous supply of the testicles and uterus respectively.

BACTERIOLOGY AND URINARY FINDINGS OF CONSTIPATION.

By JOHN L. JELKS, M.D., of Memphis, Tenn.

The author advances no new theories, but expresses his views of the importance of both chemical and microscopical investigation in connection with clinical proctology, and the value of these examinations in cases of atonic constipation.

He refers to the importance of either finding, or eliminating, the presence of intestinal parasites, that are known to produce lesions in the intestinal coats and ports of entry of bacteria or their toxins. He expresses the belief that the destruction wrought to the sub-mucous structures, the infiltration of plastic material and the contracting, distorting, scarred portion of the bowel, as also the consequent destruction of, and interference with the secreting glands, their ducts and the nerve supply may become important factors in the atonic condition of some patients.

The author believes it is important to make microscopic examinations in all cases of this character,—both of the crude and washed specimens, and of scrapings from the intestinal wall or from any lesion found in it. He also examines the urine chemically, and microscopically, believing this important, owing to the relationship and association of diabetes, kidney insufficiency and diseases of the kidney with cases of atonic constipation.

These examinations of the urine aid in determining the proper course of treatment, especially is this true when indicanuria, casts and sometimes traces of albumen, indicate the vicarious overwork of the tired and irritated kidneys, as also the intestinal fermentation and coprostatic auto-intoxication, which results in some cases.

The author refers to the importance also of examination of the stomach contents after test meals have been given as these may furnish in some cases a clue to etiologic factors.

Blood examinations he finds quite important in determining the amount of opsonic resistance as also for finding infections in the blood, which matters by lowering the vitality may become factors in the atonic conditions which were being discussed.

PATHOLOGY AND DIAGNOSIS OF CONSTIPATION.

By WILLIAM M. BEACH, of Pittsburg, Pa.

Pathology of constipation is naturally considered under two general heads, namely:—

1. Stasis due to altered secretions;
2. Stasis due to mechanical obstruction.

The first may be the result of neuroses, and acute fermentative indigestion, or a bacillary infection. The anerobes may attack the contents of the bowel or the gut wall itself, leading to varying degrees of inflammation in the colon,—as ulceration, hypertrophic and atrophic catarrh. The colon impaired functionally or traumatically leads to stasis and consecutive inhibition of the fecal excursion. Such impairment further disturbs the physiologic lines of defence against the auto-intoxications,—

as

- (a) the intestinal mucosa itself;
- (b) the liver, and
- (c) the antitoxic glands.

Collateral with these phenomena in constipation, are such factors as cholelithiasis, hypochlorhydria, cholangitis and appendicitis, as altered secretions incident to coprostatic.

Mechanical obstructions to be reckoned with include,—

1. Entroposis or Glenard's disease;
2. Gastroptosis;
3. Dilatation of the colon;
4. Certain extra-mural and intra-mural sources of obstruction,—as pelvic tumors and displacements, nephroptosis, enlarge glands, intussusception, malignant disease, etc.;
5. Acute angulation at the recto-sigmoid junction, hypertrophy of O'Beirre's sphincter, and stiff rectal valves;
6. Disease in the anal canal.

Diagnosis resolves itself into an analysis of the above conditions; to differentiate acute or chronic obstruction and the ordinary functional stasis which may also be accompanied by the various forms of colitis.

SEQUELAE OF CONSTIPATION, INCLUDING AUTO-INTOXICATION.

By ALFRED J. ZOBEL, M.D., of San Francisco, Cal.

In this paper the writer mentions many of those conditions which seem to have their origin in chronic constipation with auto-intoxication. He states that experimental evidence has not yet demonstrated that they actually do so, but close observation and clinical experience tend strongly to confirm the theory.

He writes that while all constipated individuals do not necessarily suffer from those symptoms ascribed to auto-intoxication, yet in his experience most patients with auto-toxic symptoms are constipated. This may be without their knowledge, and they often deny in good faith that they are so; but proctoscopic examination generally proves the sigmoid and rectum to be loaded with fecal matter.

A report is given of the proctoscopic observations made on a number of cases of hypertrophic arthritis. In almost every instance the lower bowel was found filled with a fecal mass, although most of the patients positively stated that they had had an evacuation within an hour or two previous to the time of examination. Thorough colonic flushings invariably brought about relief from pain, and in time marked improvement in their general condition.

These observations are in line with the theory advanced by various authors that arthritis deformans may be due to intestinal auto-intoxication.

Mention is made of the various muscular, arthritic, and neuralgic pains caused by absorption of toxins from the bowel. These are often misunderstood, and treatment instituted for rheumatism.

Congestion, irritation, and various disturbances, both functional and organic, of the uterus, tubes and ovaries in the female; the vesicles, ure-

thra, and prostate in the male; and the bladder in both, may result from chronic constipation. This is due both to the proximity of these organs to the lower bowel and their close physiological relationship.

It is noted that albuminuria may arise from intestinal stasis, and mention is made of the opinion advanced by various clinicians that a nephritis may even be caused thereby.

The role of constipation with auto-intoxication as casual factors of epilepsy, neurasthenia, and various mental conditions, as claimed by certain well known and competent observers, is stated here without comment.

The influence of these conditions on the heart, blood vessels, and the blood, and its effects on the eye, ear, nose and throat are dilated on in this paper, and in support of these statements quotations are culled from the literature that has appeared on this subject during the past five years.

The writer further briefly mentions a few more of those conditions that are supposed to arise from chronic constipation with auto-intoxication, and concludes by agreeing with the trite observation of Boardman Reed that, "when we except the exanthems, malaria, syphilis, tuberculosis, and the diseases caused by traumatisms, by metallic poisons, and by a few other toxic agents or infections from without, practically all the remaining maladies which afflict us and cut short our lives are now directly or indirectly traceable to auto-intoxication."

NON-SURGICAL TREATMENT OF CONSTIPATION.

By DWIGHT H. MURRAY, M.D., of Syracuse, N.Y.

Dr. Murray stated that chronic constipation and its results was one of the worst of the foes to a healthful human race.

He had never known any medication to cure cases of constipation. As primary causes of all cases of constipation he considered carelessness, ignorance, and laziness to be of first importance. The whole medical profession should teach their clientele how to care for themselves, and to train their children in order that constipation could be eliminated by educational and prophylactic methods.

Medicine for the use of constipated people have increased until their number is almost countless. Advertisements which extol particular cathartics exploited by this or that pharmacist, are well nigh bewildering.

He makes the claim that all cathartics finally leave those who use them worse than before. He does not entirely interdict the use of drugs, as there are cases where they must be used, but almost wholly for temporary relief. He says that a mistaken notion exists in the minds of the laity that the feces is composed largely of debris of food. This, however, furnishes only a comparatively small portion of the fecal mass, the

larger portion being deposited in the large intestine as the ash resulting from the products of metabolism.

He mentions various exercises, massage, deep breathing, climbing, sowing, electricity, etc., as being helpful in the treatment and cure of these cases.

Sigmoid injections of pure olive oil, castor oil or medicinal paraffin oil were recommended as aids in the treatment.

He said that hours could be spent over the various drugs and methods in detail—after it all we would be obliged to say, that eternal vigilance as to regularity on the part of the patient must be exercised or a cure would not result.

The key note of his paper is, education and regularity as to periodicity of the first daily stool. Finally he believed that the whole profession had a profound duty to perform for mankind in an educational way for emancipating the race from this insidious foe.

THE SURGICAL TREATMENT OF CHRONIC CONSTIPATION.

By LOUIS J. HIRSCHMAN, M.D., of Detroit, Mich.

Constipation is divided into two great classes; the one class being due to a lack of functional activity, *i.e.*, dietetic error, improper habit, neural or trophic influences. The other class, which some of us have been pleased to designate as obstipation includes all cases whose impaired activity is due to mechanical interference with the normal peristaltic movements and expulsive function of the bowel.

Obstipation, or obstructive constipation may be caused by:

- (1) The presence of any foreign body, occlusion, contracture, hypertrophy or accumulation in the intestinal canal.
- (2) Displacements, acute angulations, distensions, neoplasms, adhesions or compressions of the bowel.
- (3) Developmental defects and congenital deviations from normal.

In as much as the surgical treatment of constipation, due to easily recognized local conditions, is obvious, they are dismissed with mere mention. Coloptotic constipation represents such a large percentage of cases of mechanical constipation that its discussion involves the most important field of surgery in the treatment of constipation. All patients with ptotic colons are not constipated, nor do all constipated patients suffer from coloptosis. There must be in addition to ptosis of the secum, transverse or sigmoidal colons, a condition of functional inactivity due to atony of the bowel muscle.

Suspensions of ptotic colons by means of fixation by adhesions to the abdominal wall are unnatural and interfere with peristalsis. Restoration should be accomplished by shortening the natural support,—the

mesentery. Lateral anastomoses between the most dependent loops of ptotic bowel is sometimes indicated. Above all, massage, both abdominal and internal rectal, is of primary importance in restoring function, and should be used along with either dietary or hygienic measures to restore bowel function.

CANCER OF THE RECTUM.

By J. RAWSON PENNINGTON, M.D., of Chicago, Ill.

I take it we are all agreed as to the increasing frequency of cancer. At least it seems to me no other conclusion can be drawn from the following figures: According to the 12th United States census, cancer appears to have increased 12.1 deaths per 100,000 population in the previous decade. In Great Britain, so we learn from the work of Roger Williams, the deaths from cancer increased from 177 per million in 1840 to 885 per million living in 1905. Williams points out that while the population barely doubled from 1850 to 1905, the mortality from cancer increased more than six fold. Nor is the increase confined to the United States and Europe, it holds good for Japan, India, and even for uncivilized countries. In short, cancer is one of the several diseases which is apparently increasing, by leaps and bounds, in spite of our boasted progress in medicine, surgery and hygiene. Apart from the increased prevalence, the present death rate from malignant diseases is something dreadful to contemplate. Our anxiety in regard to malignant disease of the rectum is pardonable when we reflect that a good proportion of cancers involve this region. Williams found that 9.6 per cent. in males and 5.3 per cent. in females were located in the rectum. Is there anything that can be done to check this foe? The writer believes there is, and that this Society may be made a powerful factor for good in such a crusade. In Germany a similar crusade has been started against cancer of the uterus by Winters, agitating the subject both among the profession and the laity, it is estimated that the number of cases of inoperable cancer of this organ has been reduced over 30 per cent. as a result of calling attention to the early symptoms. Of the 2914 cases of rectal cancer in the male referred to by Williams, 2,592 patients were over 45 years of age, and 2,180 of the 2,533 female patients. In the male sex again the average age, at which the onset was noted, was 49.7 years, the minimum being 16.75, and the maximum 74, while the female sex the average was 50.4 years with a minimum 21.8 and a maximum of 88 years. This brings me to the crux of my argument, that every person who has reached the so called "cancerous age" should be examined periodically for evidence of commencing carcinoma not necessarily of the rectum alone, but in the female for example, of the uterus also.

In 120 resections of the rectum for malignant disease, W. J. Mayo observes: "It is an unfortunate fact that, in the majority, cancer of the rectum is not recognized in time to obtain a radical cure." I said a moment ago that cancer in the beginning is a local disease. This granted, then early and thorough removal must lead to a cure. It has been shown that a large proportion of malignant growths originate in scar tissue. In cancer of the stomach, for example, the Mayos found that no less than 62 per cent. showed evidences of a previous ulcer. In rectal cancer patients frequently give a history of previous operations on the part. Does the cancer occur in the scar left from an operation for hemorrhoids done by one of the commoner methods—ligature, clamp and cautery, or some other technic leaving much scar tissue and sometimes stricture? May it not be occasionally engrafted on the scar following the usual incision method of operating for fistula? Here is a suggestion for us in our own work, secure smooth healing by resorting only to such procedures as leave the minimum of cicatricial tissue, hence, the least possible nidus for possible mischief in the future. With the co-operation of the public it seems to me we should learn much about cancer in the early stages. To educate the public we must—as has been well said—"organize, systematize, deputize, energize, supervise and economize." The field is broad and the opportunity is at hand. Shall we grasp it?

PRURITUS ANI, WITH REPORT OF CASES.

By DONLY C. HAWLEY, A.B., M.D., of Burlington, Vt.

In this discussion I do not refer to cases due to intestinal parasites, errors in diet, etc., in which the pruritus is relieved by proper attention to the causative condition, nor so much to the symptoms as to the pathologic condition of the skin and nerve endings, which condition is pathognomonic.

The nearly constant local cause of pruritus ani is abrasion and ulceration of the anal canal, accompanied by blind sinuses underneath or fissures in the mucocutaneous lining.

Further, some cases are associated with chronic proctitis, which may be a factor in producing or increasing the anal abrasions or ulcerations.

The treatment I have adopted is as follows:

With the patient well anesthetized, the anal canal is dilated, and the ulceration, together with the sinuses and fissures, are thoroughly cauterized with the Paquelin cautery, and also the entire area of chronic dermal inflammation.

My aim is to destroy ulcerated areas, the thickened and altered skin and the pathologic condition of the terminal nerve fibres.

Case I. S. H. E., aet. 62, came under my observation June, 1908. He had suffered with rectal troubles for 45 years. Twenty years ago he was operated on for fissure or fistula—was not certain which. He has had almost intolerable pruritus for eight years, and for the past year it has been so constant and unbearable, especially at night, that he has become a nervous wreck, and has lost 40 pounds in flesh, and has been unable to continue his business.

Diagnosis: Chronic pruritus ani. The skin was inflamed, soddened and thickened over a large area about the anus, with many deep cracks, and four or five ulcerations and abrasions in anal canal.

Treatment as outlined. Result, cure and no return up to present time

Case II. W. A., Male, aet. 38. History of pain in rectum for 20 years, and of severe and intolerable pruritus.

Diagnosis: Chronic pruritus ani.

There was a large ulceration in anal canal and three or four blind sinuses, with an area of white brittle and infiltrated skin with large cracks about anus.

Operation, same as in Case No. 1. Result, cure.

Other cases less severe have been operated upon during past three years, with satisfactory results.

The treatment outlined is not new nor original, having been advocated by Mr. W. Mitchell Banks, and practiced by Mr. Fred. C. Wallis.

Ball's operation is designed to render anesthetic the skin over the undercut area.

The operation described accomplishes the same end and besides destroys lesions in anal canal.

The former operation has resulted in extensive sloughing. To the latter no such danger attaches.

A PAPER; INTESTINAL STRICTURE FOLLOWING ILEO-RECTOSTOMY.

REPORT OF A CASE WAS READ.

By FRANK C. YEOMANS, M.D., of New York City, N.Y.

J. X., a man 46 years of age, was always strong and well, but suffered from severe constipation of many years standing. In October, 1909, an anterior sigmoidopexy was proposed for "prolapse of the sigmoid." Temporary relief followed, but three months later "peritonitis" developed. The same surgeon operated again, freed numerous adhesions, divided the ileums just proximal to the colon, closed the abnormal end and implanted the oral end of the ileum into the rectum. Relief of the constipation was prompt, but when he first consulted Dr.

Yeomans, in July, 1910, it had returned in an obstinate form with all the symptoms of a marked auto-toxemia superadded.

The proctoscope passed easily, but no opening could be discovered in the rectum or the sigmoid. An excellent radiograph, by Dr. L. G. Cole, proved the colon and sigmoid to be unobstructed.

Concluding that the feces, following the path of least resistance, were accumulating in the colon, Dr. Yeomans did an appendicostomy at the New York Polyclinic Hospital, December 16, 1910. Irrigation through the appendix relieved all symptoms for ten weeks. Constipation and toxemia then returned, however, and he performed an exploratory laparotomy March 14th, 1911. The ileum ran down into the left side of the pelvis and was lost in a mass of dense adhesions. A broad lateral anastomosis was made between the ileum, just above the adhesions, and the sigmoid. The patient reacted well from the operation, but developed a double pneumonia, 18 hours later, to which he succumbed on the fifth day. The urine was suppressed the last 24 hours of his life. The bowels moved on the second day, and, thereafter, three or four times daily. At the autopsy no peritonitis was found. The specimen removed, consisting of ileum, sigmoid, and rectum intact, showed perfect union of the recent lateral ileosigmoidostomy. The remarkable feature of the old end-to-side ileo-rectostomy was that the opening was so constricted that it would scarcely admit a 16 F. catheter and physiologically amounted to a stricture.

The noteworthy features of this case were:

1. Reverse peristalsis of the colon, evidenced by the large quantities of feces expelled by the irrigations through the appendicostomy.
2. The radiograph was valuable in demonstrating a patent sigmoid and colon, thereby proving that the obstruction was in the small intestine.
3. Failure of the proctoscope to reveal the site of the opening does not discredit the diagnostic value of that instrument, but shows the extreme degree of contraction of the opening.
4. The many actions of the bowel signify clearly that the physiological function would have been permanently restored had the patient survived the pneumonia. The practical lesson derived from a study of the case is that lateral anastomosis is superior to end-to-side union, especially in the presence of inflammation.

SYPHILIS OF THE ANO-RECTAL REGION.

By LEWIS H. ADLER, JR., M.D., of Philadelphia, Pa.

The author related the history of two cases of syphilis in which no outward visible effects of the patient's grave condition existed, except about the anus. In both instances, the anus was surrounded by syphilitic condylomata; the parts were bathed in a fetid sero-purulent discharge

and the patients' mouths were affected with the mucous patches. In one case the patient was markedly improved by the use of salvarsan and the other improved under the ordinary mercurial treatment, but disappeared from observation before a cure could be effected.

The writer then took up the consideration of the usual manifestations of the disease as affecting the localities under consideration, stating that the primary lesion,—always a chancre,—occurs about the anal region much more frequently than is usually supposed. That chancre of the rectum proper, in this country, is a very rare occurrence. Where sodomy and other unnatural vices are practiced, infection may, and, possibly does occur with greater frequency. That females are oftener affected than males, and while the occurrence of the initial lesion about the anus or within the rectum of men, is almost positive evidence of the practice of sodomy; in women, the possibility should be remembered of the infection of these parts arising through contact with the male organ, or from the vaginal discharges.

That the diagnosis of all doubtful cases of syphilis can now be definitely determined when the patient's blood shows a positive Wasserman reaction and by finding the presence of *sphirocheta pallida*.

Attention was called to the fact that cases of ano-rectal syphilis develop the usual symptoms of the disease as when it affects other parts of the body, and, next to the mouth and throat, the anus is the most frequent site for mucous patches.

Attention was called to the hereditary or congenital form of the disease; and, among the tertiary lesions, the following principal varieties were enumerated:—Gummata; destructive ulceration; stricture; ano-rectal syphiloma, and proliferating proctitis.

The article concluded with a brief consideration of the treatment of the disease in which attention was directed to the necessity of care being exercised in looking after the hygiene in all its phases; that the constitutional treatment of the disease should not be commenced until a positive diagnosis is established; that as no one form of mercury, or any one of the various methods of its administrations may be employed successfully in all cases, the individual requirements of each person should be the guide.

Ehrlich's remedy,—salvarsan,—had in several instances been employed with excellent results, but the author would not depend upon its employment alone, believing that mercury should supplement its use.

In the use of salvarsan, it was advised that no one treat patients with it, except those specially trained in its preparation and administration.

FOREIGN BODIES IN THE RECTUM.

By T. L. HAZZARD, M.D., of Pittsburgh, Pa.

The paper consisted mostly of a recital of four recent cases of foreign bodies in the rectum. Two were in children, in which the substances were accidentally swallowed, and the others were adults who introduced the bodies directly into the rectum through some perversity:

Case 1. Baby girl, two years old. Referred for dysentery of three months' duration. The chief symptoms being bloody stools, mucus and tenesmus. No digital or other local examination had previously been made. Examination with the little finger showed the presence of something lying across the bowel, low down. A guarded pair of scissors was introduced, and this body was easily cut in half and removed. It proved to be a match, or at least, nearly two-thirds of one. Although the ends of this match were firmly fixed in the sides of the intestine, no abscess followed. Recovery was rapid and uneventful.

Case 2. Boy, a little older than the first case. The symptoms, conditions and procedure were the same as the preceding case, but the foreign body was a bone from a frog's leg.

These cases show the necessity for rectal examinations. In one case a bacterial microscopical test had been made, but was rather misleading than otherwise.

Case 3. Self introduction into the rectum of a prescription bottle, a "Baltimore oval" 3 oz. The mouth was upward. After considerable trouble it was removed by means of a blunt hook. It had been in the bowel for three days. No anesthetic necessary. The case progressed without any untoward incident. He gave no reason for his action, and no questions were asked, as he would not have told the truth.

Case 4. Adult, aged 45. Had been a cow-puncher. At present has no occupation. Came to Allegheny Hospital. Examination showed the presence of a very thin beer glass, 2 inches wide, at the top, and 3½ inches tall. Sphincters contracted. No bleeding and but little discomfort. In attempting to remove it, it was broken. After it was extracted there was considerable bleeding from the rectum. He developed pelvic peritonitis, and a rather large tumor developed in the left iliac region. This passed away and he was discharged in about three weeks, not altogether well of the pelvic pains.

General treatment in all cases was rest in bed, with frequent washing of the bowel with a 1 per cent. solution of creoline and normal salt.

THE LIMITATIONS OF THE USE AND THE METHODS OF EMPLOYING
LOCAL ANESTHESIA IN RECTAL SURGERY.

By LEWIS H. ADLER, JR., M.D., of Philadelphia, Pa.

The author quoting from a recent article of a distinguished proctologist states: "Patients seriously object to a general anesthetic, and

because of this and the fact that most minor ano-rectal operations can be painlessly performed under local anesthesia induced by sterile water, or a one-eighth of one per cent. eucaine solution, I have discarded general narcosis in about eighty per cent. of my rectal operations."

In taking exception to this general statement he questions the wisdom of sending it broadcast and advocating a method which in the hands of one not particularly skilled in rectal work would, in his opinion, only lead to disaster.

He calls attention to the water logging of the tissues, when sufficient anesthetic be used, whether cocaine, eucaine, sterile water, or other agents and to the subsequent retarding of the recovery of the patient and the danger of haemorrhage from allowing patients to be about on their feet, citing a case which proved conclusively the force of his arguments.

The author claimed a thorough understanding of the underlying conditions can rarely be made without the aid of general anesthesia. The latter when administered by a competent anesthetizer is not attended with any more danger of risk than the indiscriminate employment of local anesthesia.

He calls attention to the fact that it is essential to remove the anesthetic when the sphincter is divulsed, as deep inspiration thus induced would cause too much of the drug to be inhaled suddenly, and might cause alarming or fatal results.

Rectal diseases, which may be treated under local anesthesia he considers under two divisions: (1) Those admitting of office treatment; (2) those requiring treatment at home or in a hospital.

In the opinion of the author external piles or other excrescences around the anal region, some fissures-in-ano, and abscesses (of not too large an extent), are the only affections coming within the range of operations which can with propriety be performed in the office under local anesthesia. He warns the operator that trivial fistula, often have diverticulae and are not readily discoverable except under general anesthesia.

Under the second heading he speaks of internal colostomy and internal hemorrhoids and warns the operator that the temperament of the patient must always be taken into account. Highly nervous patients will not stand manipulation of the intestines, and the abdominal muscles are apt to be rigid.

The author mentions the different drugs used in local anesthesia, the vibratory method of Hirschman, the methods used in getting the parts anesthetized and the after treatment.

The trend of the article is not to throw cold water on the valuable procedure of local anesthesia, but to insist that the cases must be suitable and in the hands of men of experience.

CURRENT MEDICAL LITERATURE.

MEDICINE.

Under the charge of A. J. MACKENZIE, B.A., M.B., Toronto.

TREATMENT OF COUGH.

Cough is a sensational reflex phenomenon following centripetal excitation, having its seat in any part of the organism.

It is thus, says Dr. Hirtz, that one hears of nasal, auricular, gastric, hepatic, ovarian and cerebral cough. To tell the truth, cough has only been produced experimentally by exciting the respiratory tract, and the existence of cough of visceral origin is only proved by old text-books.

Cough due to a lesion of the respiratory apparatus can be very efficaciously relieved by treatment appropriate to the affection in cause. Consequently, it is important to make a complete examination of the patient so as to arrive at an exact diagnosis of the affection.

Opium and its Alkaloids.—It is almost always easy to relieve cough by the aid of opium or its alkaloids. It acts by analgising the inflamed surfaces, by diminishing the excitability of the motor nerves and by calming the spasms of the muscular fibres; it also diminishes the secretions. These different properties make opium a heroic remedy for cough, but by reason of its activity it can become really dangerous by suppressing the secretion and provoking in the aged encumbrance of the bronchi by mucocities. Children ill support opium, especially those whose kidneys are out of order.

Moderators of the Reflex.—Bromide of potassium, belladonna, hyoscyamus, stramonium. These agents act by diminishing the reflex power. Bromide of potassium is frequently prescribed for conclusive cough; it provokes anæsthesia of the mucous membrane. Belladonna and atropine produce dryness of the throat and of the larynx. They should not be prescribed where expectoration is undesirable.

Anti-spasmodics.—Among the anti-spasmodics, valerian, cherry laurel water, aconite, chloroform water, are chiefly employed. Aconite relieves the cough by acting on the peripheric nervous system and by diminishing the congestion, while chloroform water is eliminated by the bronchi, producing a certain amount of anæsthesia.

Drugs Acting on the Secretion.—Certain drugs have the reputation of acting on the bronchial secretion, either by diminishing it (tannin) or by diminishing the viscosity (bicarb. of soda, hyposulph. of soda, tar, terpine).

Expectorants, Emetics.—The best known are senega, soap bark, oxide of antimony, hippo.

Sulphurous Waters.—Indicated in cough due to chronic and non-congestive lesions of the larynx, bronchi. (Uriage, Luchon, Cauterets, Barèges, Enghien, Allevard, etc.)

TREATMENT OF DIVERS AFFECTIONS.

Cough in Laryngitis and Tracheitis.—Here it is not necessary to have recourse to heroic measures, as the lesion can be successfully treated by inhalations and hot compresses to the front of the neck.

Menthol, 10 gr.
Thymic acid, 10 gr.
Tincture of eucalyptus, 2 dr.
Phenic acid, 10 gr.
Cherry laurel water, 3 oz.
Tincture of benzoin, ½ dr.

A teaspoonful in a small bowl of boiling water and inhaled through a funnel.

If this treatment is not sufficient opium and aconite might be prescribed.

Acute Bronchitis.—Warm drinks, opium, or its derivatives and anti-spasmodics to relieve the nervous system. Each practitioner has his special formula. In the chronic form, the balsams already mentioned are indicated.

Pleurisy.—Patients suffering from pleurisy are frequently tormented by a little dry cough coming on by change of position. This cough can be relieved by revulsives and anti-spasmodics.

Whooping Cough.—Here opium in all its forms gives good results (paragoric elixir at the dose of five drops a day for each year of the patient). Bromoform, antipyrin, chloral have also been tried with variable results.

Pneumonia.—Expectorants, dry or wet cupping, bleeding, etc.

Pulmonary Tuberculosis.—It is especially in consumption that it is necessary to distinguish between the dry cough that brings up nothing and the expectorating cough which drains, so to speak, the lungs. The cough can be relieved by the various agents mentioned, but morphia, which is ill borne by consumptives, should be prescribed with precaution.—*Medical Press and Circular.*

THE TREATMENT OF BACILLARY DYSENTERY.

F. S. Meara, New York (*Interstate Medical Journal*, September), in discussing the treatment of dysentery limits himself to that type produced by the bacillus (or group of bacilli) spoken of as the bacillus

dysenteriae. Rest in bed which takes away most of the stimulus to increased peristalsis, is desirable in all cases, though in the milder cases the patient will often not accede to such plan. In the more severe cases, however, this becomes imperative, and special stress is laid by the author upon the selection and arrangement of the sick-room and bed. Milk meets the dietary requirements better than any other food. The writer's routine practice has been to put the patient on a milk diet, ordering the milk boiled and given every two hours, the patient to take what he will of 8 ounces. When the temperature disappears and the stools have lost their diarrheal character, barley jelly and thoroughly boiled rice, and later toast, then egg,—and gradually the resumption of normal diet. Water should be given freely and all food must be given warm. A dose of castor oil, from $\frac{1}{2}$ to 1 ounce is especially recommended at the onset of the trouble. Following this the author has found the following prescription especially gratifying probably due to the *ol. ricini*:

| | | |
|----|---------------------------|------|
| R | Tr. opii deodorati..... | 1. |
| | Salol..... | 2.50 |
| | Olei ricini | 10. |
| M. | et Div in capsulæ No. XV. | |
| S. | One every 2 hours. | |

For the colicky pains hot fomentations are often of value. Comfort may also be afforded by warm rectal irrigation at 100 degrees—105 degrees F. of physiological salt solution. About 2 quarts may be used at a time, in some cases even more. The irrigation may be followed by an astringent, the best being silver nitrate. It should be used in increasing strengths, 1 to 2,000 at first and increasing up to 1 to 500. If the solution of silver gives great pain it is too strong and may be neutralized by salt solution. The treatment must be intermitted occasionally to let the mucosa recover from any possible irritation by the silver. At times the chronicity of the disease may be due to the irritation these very measures keep up and a cessation of local measures is followed by rapid recovery. If the tenesmus is very severe the following suppository is recommended:

| | | |
|---|----------------------------|-------------------|
| R | Opii pulveris..... | gr. 1 |
| | Extr. belladonnae fol..... | gr. $\frac{1}{4}$ |
| | Olei theobromatis..... | q. s. |

When the pain is too great to be relieved by these, morphine hypodermically had to be used. For the diarrhea the author relies upon opium rather than bismuth, for which he has slight regard. The opium need rarely be used in greater dosage than one drop of the tincture every two hours. In convalescence from severe cases much too little use is made of carbohydrates in the dietary. Barley, rice, farina, bread and butter, and cereal soups should all be used. Beef, mutton and chicken and the purées of the vegetables may also be allowed. Under-nutrition is to be carefully avoided.

SODIUM CINNAMATE IN TUBERCULOSIS.

Lautier, of Bordeaux, in the *Journal de médecine de Paris* for August 12, 1911, states that this salt may be given *per os*, hypodermically, or intramuscularly. Whatever method is used, the dose remains at one and a half grains daily. For administration by the mouth:

R Sodium cinnamate..... grains xv:
 Distilled water..... ℥j.
 M. Sig.: Dessertspoonful twice a day before meals.

For hypodermic or intramuscular injection:

R Sodium cinnamategrain jss :
 Physiological solution.....cc. j.
 M. For one injection.

As the hyperleucocytosis caused by sodium cinnamate lasts only some twenty-six hours after absorption, it is necessary that the patient receive a daily dose sufficiently large to keep his organism in a perfect condition of resistance.—*New York Medical Journal*.

 PSORIASIS.

L. D. Bulkley, New York (*Journal A. M. A.*, August 26) says that the medical profession does not seem to appreciate the value of an exclusive vegetable diet in the treatment of psoriasis. He has, therefore, been led to keep a list of his recent private cases who have been under a vegetarian diet for the last two years. He remarks, first, that psoriasis is not very common as an eruption in this climate, but it is still more rare in warmer climates, and, during a prolonged trip to the East he could not learn of its occurrence among the vegetarian, chiefly rice-eating, natives. He gives a tabulated analysis of a large number of private cases showing the age of the incidence of the disease, it most frequently occurring during early maturity and middle life, but it may begin during infancy and in quite a number of cases it began during childhood. Its persistence is shown by duration for twenty, thirty, or even fifty years in a large number of cases. During the two years in which he has kept a special record he has observed 134 cases of psoriasis who have kept more or less faithfully on a vegetarian diet, nearly one-half of them absolutely vegetarian. Patients who have relapsed into a free meat eating diet have had a recurrence of the eruption or an aggravation of what remained in many cases, though in some instances it did not seem to cause the disease. A certain number of people, however, are, he thinks, as shown by the evidence, incapable of properly assimilating much proteid substance. He is accus-

tomed to tell his patients that the vegetable diet must be continued indefinitely as the disease may return whenever the intake of proteids is greater than the system can manage. The urinary examination of patients with psoriasis showed, in the average, deviations from the normal, indicating imperfect metabolism of nitrogenous elements. The average specific gravity was 1,026, much higher figures being not uncommon as the acidity was invariably high, uric acids and urates abounding and the urea increased even double the normal amount. Hence the value of alkaline diuretics with the vegetable diet, which is not alone sufficient in many cases though the most important part of the treatment. There are some articles from the vegetable kingdom which must be guarded against. Alcohol in any form, even the lightest beer, is prejudicial, and in some cases coffee, chocolate and cocoa are better excluded. Butter is the only animal product allowed, except possibly a very little fat bacon occasionally. Too much indulgence in sweets is to be avoided and acid fruits seem sometimes to interfere with the treatment.

MALIGNANT ENDOCARDITIS.

Thomas E. Satterthwaite (*Med. Record*, July 15th, 1911) states that malignant endocarditis is a simple endocarditis that has become infected. It is in most instances a fatal disease. The author has studied 100 cases recorded in the reports of three hospitals in New York: the New York, St. Luke's, and the Presbyterian. The statistics are as follows: New York, admissions 88,365, cases 50; St. Luke's, admissions 14,266, cases 45; Presbyterian, admissions 33,592, cases 118; total, 136,223 admissions; cases treated, 213. The infecting organisms are various: the streptococcus, staphylococcus, pneumococcus, gonococcus, etc. Some cases are examples of mixed infection. The disease is rare under 3 or 4 years of age, and is chiefly found during early middle life. It is accompanied by high fever, petechiae, haemorrhages, headache, and diarrhoea. The leucocytes are diminished in number, and the haemoglobin index is low. Rheumatism accompanied 37 per cent. of the cases. Cultures should always be made, but the results cannot always be depended upon. When they are negative one must depend upon leucopenia, enlarged spleen, haemorrhages, previous endocarditis, displacement of the heart, precordial pain, and a septic temperature. The prognosis is bad, 85 per cent. of the cases dying. Histories are given of 5 cases which were improved or cured. The indications for treatment are rest, abundant food, liberation of pus when possible, and quinine and iodine internally.—*British Medical Journal*.

SURGERY.

Under the charge of H. A. BEATTY, M.B., M.R.C.S., Eng., and A. H. PERFECT, M.D., C.M.,
Surgeons to the Toronto Western Hospital.

 DECAPSULATION OF THE KIDNEY IN CHRONIC BRIGHT'S DISEASE.

James Tyson (*Med. Record*, July 8th, 1911) presents the histories of four cases in which decapsulation of the kidneys was done for the cure of Bright's disease, with excellent results as far as the improvement of health and the ability to work was concerned. In none of them did the albumen entirely disappear. These results are not as good as those claimed by Edebohls, who reports 14 ideal cures out of 72 cases operated upon. The author claims that this operation is so serviceable that it should be done more frequently. It is demanded by stubborn persistence of symptoms which cause inconvenience or danger to life, such as dropsy, uraemia, anuria, and excessive albuminuria. The operation should not be considered until medical treatment has failed. Obstinate haematuria, pyelonephritis with miliary abscesses, hydronephrosis, and pyonephrosis all justify the operation. It is contraindicated by age, valvular heart disease, extensive cardio-vascular changes, retinitis albuminurica, etc. The cause of the improvement after operation has been claimed to be due to relief of congestion and the formation of new vascular connections after the removal of the capsule, and before the formation of the new capsule which is soon formed. The immediate benefit is ascribed by Edebohls to the massage of the kidney which is produced during the handling of the kidney at operation. The cases most favourable for the operation are chronic parenchymatous nephritis, according to the author, and interstitial nephritis according to Edebohls.—*British Medical Journal*.

 OMENTAL CYSTS.

Stanley Stillman, San Francisco (*Journal A. M. A.*, August 26), reports a case of lymphangioma of the omentum which is of interest, not only on account of its rarity, but for the evidence that it furnishes of the theory of Jacobi that true serous cysts of the omentum all have their origin in the lymph-vessels of the omentum. The patient, a woman of 42, married, with one child, came to him on account of an abdominal tumor, first noticed five years previously, which steadily increased in size. Examination disclosed a tumor the size of one's head attached to the uterus but quite freely movable, which was diagnosed as pedunculated

myofibroma. During operation it was found that the tumor was also attached to the lower border of the great omentum by a pedicle as thick as one's thumb and containing many large blood-vessels. When the omentum was pulled down it was found to contain between its peritoneal surfaces numerous elongated, tortuous, exceedingly thin-walled cysts distributed throughout the omentum and varying in size and length. The entire omentum was removed after ligating along the lower border of the colon. The blood-vessels, especially the veins, were enlarged and the dilatations or cysts were unmistakably enlarged lymph-ducts, all showing a characteristic lobulation comparable to that of the distended colon. The case was similar to one described by Fitz in the Lane lectures in 1910. From a study of the literature he is of the opinion that there have been twenty cases of serous cysts recorded besides that reported by Fitz and his own, making twenty-two in all. He gives brief condensations of the histories of these cases and mentions others that are more or less doubtful, and some of which he has not been able to obtain access to the histories.

As far as diagnosis is concerned in these cases it is generally admitted that it is practically impossible before operation. Most of the cases have been mistaken for tuberculous peritonitis with ascites or for ovarian cyst with a long pedicle.

THE SELECTION OF OPERATION IN BILIARY DISEASE.

Howard Lilienthal, New York (*New York Medical Journal*, July 1, 1911) has always been an advocate of cholecystectomy and is not in sympathy with the recent trend of surgeons toward cholecystostomy. He renews all the arguments that have made in favor of the latter operation and sees no reason to change his view. His only contraindications to cholecystectomy are the following: 1. Grave complicating diseases, e.g. typhoid fever. Here, also, he advocates later removal of the gall-bladder to prevent as far as possible the patient becoming a typhoid carrier. 2. Complete obstructive jaundice. A second stage removal of the gall-bladder is even here indicated, especially if the patient has signs of hepatic cirrhosis. 3. In aged or feeble patients and in those who take the anæsthetic badly, in order to save time and shock. Lilienthal describes minutely his operation of cholecystectomy.—*Am. Jour. of Surgery*, Aug., 1911.

THE CHOICE OF THE ANÆSTHETIC.

Dr. Arthur Dean Bevan, of Chicago, submitted the following conclusions: 1. The anæsthesia must be placed in trained professional hands.

2. The methods of giving the anæsthetic and the apparatus employed should be as simple and uncomplicated as possible. 3. The anæsthetic mixture and sequences should be, like the old shot gun prescriptions of the past, avoided, and the patient's life not jeopardized by the exhibition of two or more powerful poisonous agents at the same time which might intensify one the action of the other, or mask the ordinary danger signals. 4. For routine work ether by the open or drop method was the safest and most satisfactory anæsthetic, and in the usual run of cases in a hospital service the anæsthetic of choice in from seventy-five to eighty per cent. of the cases. Ether should not be employed for rectum operations. 5. Chloroform should be discarded as a routine anæsthetic. It produced too many immediate and late deaths to warrant its general employment. It was only in the exceptional case, as in a laryngectomy where one might feel that the direct introduction of chloroform vapor into the trachea might produce sufficiently less irritation to the mucosa with less risk of pneumonia, than ether, that there was reason to employ it. 6. Nitrous oxide gas was the anæsthetic of choice for short operations, manipulations, and examinations. It was also the anæsthetic of choice in operations upon patients with seriously impaired kidneys, and often in cases in extremely bad condition, as typhoid perforations, general peritonitis, etc. It should not be employed in patients with bad hearts. It was not as satisfactory an anæsthetic as ether, and it should not be employed in preference to ether in patients who were good surgical risks. 7. Local anæsthesia with cocaine and similar agents had a limited field of usefulness. The amount of cocaine employed by infiltration should always be short of a toxic dose, from one tenth to one fourth of a grain. It should be employed in normal salt solution with small amount of adrenalin. Where the amount did not exceed one tenth of a grain it might safely be preceded by a small dose of morphine and scopolamine. 8. Spinal cord anæsthesia had to-day no place in surgery. 9. The use of morphine and scopolamine before a general anæsthetic brought with it dangers which were not compensated for by any advantages, and the method should be abandoned or limited to specially selected cases.—*New York Medical Journal.*

THE MODERN TREATMENT OF SIMPLE FRACTURES.

Within the last few years a great impulse has been given to the operative treatment of simple fractures, and to-day the question as to whether we should treat them by the older methods or by open operation is one of much debate, and one on which there is an ever-increasing divergence of opinion.

Mr. W. Arbuthnot Lane, of London, has brought this matter very prominently before the American medical profession. His excellent work and his radical opinions have done much toward creating a spirit of unrest among surgeons.

The x-ray has also had a very disturbing influence, and has led many to be dissatisfied with results which formerly would have been entirely satisfactory both to the surgeon and to the patient.

There is no doubt that a simple fracture may be a difficult injury to treat, and there is also no doubt that too large a proportion of such cases have been unsatisfactorily treated. But shall we set aside entirely our old methods of treating fractures? And shall we resort to the operation in all simple fractures in the future? Most emphatically No!

If we resort to the operative treatment of all our simple fractures, we shall find ourselves undertaking a very difficult procedure and we shall have had results in as great or even a greater proportion than in the past.

Let us consider a simple fracture of the shaft of a long bone and what we may expect if such a fracture be skilfully treated by the older method of reduction and replacement, aided by proper extension and fixation. We may and should expect to have little or no deformity, little or no shortening, no permanent nor prolonged disorder of the neighboring joints, and we should certainly expect to have an absolutely useful and serviceable limb.

Has this been the rule in the past? It certainly has been. Have there been too many exceptions? There certainly have been. The one and greatest reason why we have had failures or partial failures is the fact that in our hospital practice simple fractures are ordinarily left to the care of the imperfectly trained internes, and that they have not received the full benefit of the highest skill of the most experienced surgeons.

Now let us consider for a moment what may be the range of bad results which make up our failures or partial failures under the older plan of treatment. We may have deformity, shortening, more or less stiffening of neighboring joints, perhaps persistently painful limbs, but it may be said that loss of limb is never to be expected and that loss of life is practically out of the question.

Now, on the other hand, what may be the conditions to be called failures or partial failures as the result of the operative treatment of simple fractures? In the first place there is always a risk to life. Death will occur in a certain proportion of cases. There is always the danger of losing a limb or destroying a joint, and there are also the minor risks of deformity, shortening, and of painful limbs. These minor risks of the operative method are the major risks of the non-operative treatment.

Surely the operative method should be resorted to whenever we are unable to obtain a satisfactory result by non-operative measures. Certain

cases will present themselves to every surgeon where he cannot bring about a satisfactory, anatomical and surgical reduction of the fragments, or where it will be found impossible to efficiently retain them in place without one of the recognized operative methods.

Personally, I think that we are very much where we have been for many years as far as this question is concerned. I think that our endeavor and expectation should be to treat successfully our simple fractures by non-operative measures, except in a limited number of cases. I think that we should always expect and demand of ourselves a thoroughly good practical result. I mean by that such restoration as to leave the patient without deformity, without impediment and without pain, and with a thoroughly useful limb as far as all its normal functions are concerned. I am sure that this can be brought about in almost all cases of simple fracture, if they are treated with the best skill of a surgeon who is qualified and competent to perform so serious and hazardous an operation as that for a simple fracture.

To-day there are too many non-surgeons doing surgery. If men who are unable to obtain good results by the non-operative treatment of fractures undertake to treat them by operative methods, the results will be disastrous and surgery will be exposed to serious disgrace.—PARKER SYMS. *International Journal of Surgery*, May, 1911.

GYNÆCOLOGY AND ABDOMINAL SURGERY.

Under the charge of S. M. HAY, M.D., C.M., Gynecologist to the Toronto Western Hospital, and Consulting Surgeon, Toronto Orthopedic Hospital.

RELATION OF THE THYROID GLAND TO THE FEMALE GENERATIVE ORGANS.

J. R. Goodall and L. C. Corm (*Can. Med. Assoc. Jour.*, 1911, T. 404; *Surg. Gyn. Obst.*, 1911, xii, 457) record the history of a woman of sixty-nine years in whom the thyroid gland had enlarged synchronously with the onset and progress of chronic pelvic tuberculosis. The uterus and appendages were removed and a tubo-intestinal fistula closed. The thyroid gland then diminished rapidly to below the normal size. In attempting to decide which of the conditions stood in the position of cause and which in that of effect, the writers have studied a number of other cases which showed symptoms referable to the thyroid in conjunction with pelvic symptoms and have considered the views of others. They conclude that the relation between the female genitals and the thyroid is very intimate. The generative organs which stand in such close relation with the thyroid are the ovaries. The uterus is devoid of any influence upon thyroid activity, except in that its function may affect the ovarian function

and through this the thyroid. Thyroid activity is in a measure under the governance of ovarian activity. Ovarian hyperactivity is a frequent cause of the development of exophthalmic goiter. Diminished, or absent, ovarian activity usually coincides with myxedema. Puberty, menstruation, pregnancy, lactation, and menopause, exercise a profound influence upon thyroid secretion. Thyroid secretion and ovarian secretion do not supplement each other; they neutralize each other. The ovary has two secreting structures, the corpora lutea and the interstitial cells. It is the secretions from the latter which seem to bring the ovary and thyroid into such close relation.—*American Journal of Obs. and Diseases of Women and Children.*

THE APPENDIX IN GYNAECOLOGY.

Felix Legueu (*La Gyn.*, March, 1911), reviews the position of the appendix in various gynaecology troubles. With some surgeons it is a rule in all gynaecological operations to remove the appendix whether diseased or not. This is the practice of the author. In many of these cases there has never been an appendicial crisis. In thirty-two cases of appendix removed in the course of various operations a microscopic examination was made. The histories of these cases and their findings are detailed. The cases of adnexitis show that in a large proportion of them there were lesions of the appendix as well. Even when the appendix was distant from the tube it was found to be altered, showing that the inflammation had been propagated to the appendix by peritoneal or subserous paths. These lesions were such as to demand the removal of the appendices. Removal of the appendix is the necessary complement of salpingectomy or hysterectomy for catarrhal or suppurative salpingitis. In the absence of lesions of the adnexa the appendix is less likely to be involved, but even in these cases the author thinks it better to remove the appendix. Even with a 'normal appendix there can be no objection to the removal of an organ whose fragility exposes it to alteration at any time. In every case of laparotomy for gynaecological disease the appendix should be removed as a routine procedure.—*American Journal of Obstetrics and Diseases of Women and Children.*

THE DILATATION TEST FOR CHRONIC APPENDICITIS.

W. H. Bastedo, New York (*American Journal of Medical Sciences*, July, 1911) reaffirms the value of his test in the diagnosis of chronic or latent appendicitis. This test consists in dilating the colon with air through

a rectal tube. "If, as the colon distends, pain and tenderness to finger point pressure become apparent at McBurney's point, there is appendicitis. The test is not required in acute cases, or in undoubted chronic cases. The author recommends it in cases of persistent hyperchlorhydria. As is well known, a latent appendicitis may have its chief manifestation in a stomach derangement. The test is of especial value in differentiation between appendicitis and disease of the right adnexa. The author reports five cases in which the test proved of value.

PERSONAL AND NEWS ITEMS.

ONTARIO.

Dr. Primrose has returned to town.

Dr. Lee Strathy, of Toronto, sailed for England two weeks ago.

Dr. H. A. Bruce had an enjoyable trip to the Saguenay.

Dr. W. P. Cavan spent June, July, and August near Bobcaygeon.

Dr. Murray McFarlane has removed to 190 Bloor Street E., Toronto.

Dr. William Jamieson, of Wellandport, has been appointed an assistant coroner for the County of Lincoln.

Dr. Buchanan, of India, who returns to his work in October, is visiting friends in West Toronto.

Dr. W. H. Pepler, who has been spending his holidays at Cedarhurst, has returned home with his family.

Dr. W. H. Robertson has moved into his new home at the corner of Concord and Bloor Streets.

Dr. J. J. Cassidy and family have returned to Toronto after spending the summer at their home at Long Branch.

Dr. and Mrs. F. C. Hood have returned to Toronto from Pointe Au Barie where they spent their holidays.

Dr. C. A. Campbell was married on 27th September to Miss F. G. McLeod. Both are residents of Toronto.

Dr. and Mrs. Crawford Scadding and their daughter have returned to Toronto after spending the summer abroad.

Dr. and Mrs. J. H. Radford, of Galt, announce the marriage of their daughter, Helen, to Mr. A. Melvin in the first week in October.

Dr. C. R. Dickson, of Toronto, has returned from Philadelphia and Atlantic City.

Dr. and Mrs. F. N. G. Starr, of Toronto, have returned to town from their cottage on the Georgian Bay.

Dr. Charles O'Rielly, of Toronto, left about the middle of August for a two month's trip to Britain and France.

When Dr. Reeve was in England, the University of Manchester conferred on him the degree of LL.D.

Dr. G. A. Bingham, of Toronto is making good progress towards recovery from his severe injuries.

Dr. G. S. Ryerson attended the British Medical Association. He specially represented Canada and the University of Toronto.

Drs. Geo. Ross and King Smith, of Toronto, spent a holiday in Europe.

Dr. Livingstone will specialize disease of the nose, throat, and ear, at 418 Bloor Street West, Toronto.

Dr. Bruce has been appointed to the charge of the Tuberculosis Sanitarium, London, Ont.

The city of Toronto has purchased a site in the Township of York for the Isolation Hospital.

Dr. Helen MacMurchy has vacated her position as one of the Toronto Medical Inspectors of Public Schools.

Dr. George W. Badgerow, an old Toronto boy, and now residing in London, England, has been home on a visit.

Dr. Duncan Graham has been appointed lecturer in Bacteriology, Medical department, University of Toronto.

Dr. B. E. McKenzie, of Toronto, so well known in connection with the Orthopedic Hospital, has recovered from an attack of appendicitis.

Dr. J. N. E. Brown and Mrs. Brown have returned from their three months' trip through Europe.

Dr. W. E. Struthers, Chief Medical Inspector of Public Schools, was quite ill during August and the early part of September. He has now regained his health sufficiently to resume his official duties.

Dr. Boyd, of Coldwater, met with a very severe accident on 30th August. His car overturned upon him, causing a fracture of his leg and two ribs.

Dr. and Mrs. James H. Cotton, Miss Margaret and Mr. James Cotton have returned from Muskoka and are now living at their new home, 703 Spadina Avenue.

Dr. B. L. Riordan is now steadily improving from his lengthy illness. About nine months ago he had typhoid fever followed by pleurisy.

Dr. McRae, who was located for many years at the corner of College and Clinton Streets, Toronto, is now located at 60 Thorald Ave., near the junction of Bloor and Dundas Streets.

Dr. Hastings, Toronto Medical Health Officer, has discovered that some dairymen in Toronto are using formaldehyde as a milk preservative. Sixty-four quarts of milk containing formaldehyde were seized at one dairy and 352 at another. The milk was emptied into the sewer.

Dr. and Mrs. O'Connor, formerly of Toronto, announce the engagement of their daughter, Blanche Drury, to Mr. Harold Courtney H. Pole, son of the late Dr. Pole, Edinburgh, Scotland. The marriage will take place in Toronto the latter part of October.

Mr. H. C. Tomlin, one of the Governors of the Toronto Western Hospital, has donated a Brumball Dean sterilizing outfit at a cost of \$1,000. In a few weeks the Western Hospital will be in possession of two of the most modern operating rooms in Canada.

Dr. Bruce, Superintendent of Brompton Hospital, London, England, has accepted the position of Superintendent of the Alexandra Sanitarium for Consumptives at Byron. The engagement is the result of Hon. Adam Beck's recent trip to Europe, where he visited many sanitarium. Dr. Bruce is to be here in October.

QUEBEC.

Prof. Adami, of McGill, represented the Canadian Government at Rome at the Tuberculosis Conference.

Dr. F. J. Tooke, of Montreal, has been elected an associate member of the American Ophthalmological Association.

Montreal continues its good work of public schools. This was the first city in Canada to adopt medical inspection. The results have proven its great value.

Dr. Laphorn Smith, Montreal, and Miss Mary Williams, daughter of Mrs. Williams, London, Ont., were married very quietly on 6th September by the Rev. R. Hewton, the rector, at St. Paul's Church, Lachine. The bride was given away by her brother, while the bridegroom was attended by his son, Mr. Gordon C. Smith. Dr. and Mrs. Smith left in the afternoon for a trip to the Adirondacks.

WESTERN PROVINCES.

Dr. A. S. Monro, of Vancouver, has returned from a trip abroad.

Dr. Good, of Winnipeg, underwent an operation at the Rochester Hospital, Minn.

Dr. and Mrs. H. Herbert Secord, of Winnipeg, spent a holiday in Toronto.

The marriage of Dr. Young, of Winnipeg, to Miss Landon Wright took place on 14th September.

In Winnipeg, public school inspection is doing good work. There has been a marked influence on the spread of disease among pupils. A good deal of ill health has been detected and set aside for treatment. Many abnormalities have also been corrected.

Dr. D. J. Dunn, of Edmonton, Alta., has been doing good work in that city as medical inspector of schools. He is raising the standard of health of the children very much. Medical inspection of scholars in Edmonton shows, as elsewhere, that it has a very marked economic value.

Dr. Ernest Hall who recently left Victoria for Long Beach, Cal., has been requested by the Board of the Vancouver Medical Missionary College—in process of formation—to develop the medical department. He will reside in Vancouver and restrict his practice to surgery and gynaecology.

With a view as much of supplying free medical attendance to the poor of the city, as of giving prospective missionaries to foreign countries a medical training, the Central Methodist Church, of Vancouver, has decided to establish a Medical Missionary Training School, and in connection therewith a dispensary in the church building. The school will be in charge of Dr. Ernest Hall, a surgeon of wide repute recently moved to Vancouver from the Capital, and it will be controlled by a board of management of five members, three of whom were appointed last evening. The inauguration will take place October 2.

FROM ABROAD.

Dr. A. H. Ferguson, of Chicago, has been in very poor health for some time, but is now improving.

Dr. Frank P. Foster, for many years editor of the *New York Medical Journal*, died recently.

It is estimated that about 15,000,000 persons in Britain will come within the range of the benefits of the British Insurance Scheme.

D. K. Coutts, M.B., F.R.C.S., assistant surgeon to the Norfolk, England, Hospital, died very suddenly from an attack of apoplexy.

Dr. G. F. Blandford, a distinguished British authority on insanity, died on 1st August at the age of 82 years. He was a noted author.

Dr. H. E. Roaf, of Toronto, lecturer on chemical physiology and demonstrator of physiology at the University of Liverpool, has been appointed lecturer on physiology at St. Mary's Hospital Medical School.

Dr. W. Allan Jamieson, Surgeon to the Royal Company of Archers, the King's bodyguard for Scotland, has had the Coronation Medal conferred upon him by His Majesty the King.

The Antiseptic criticises very severely the condition of medical education in India. Judging by what *The Antiseptic* has to say, there is good grounds for complaint.

According to the investigations of Drs. Sandes and others, it appears that leprosy is likely to spread from the ill to the well by the bite of insects, such as flies, mosquitos, fleas, and bed bugs.

Among the recipients of honorary degrees from the University of Christiania, which has just celebrated its jubilee, are Sir Thomas Barlow, Sir William Osler, and Sir John Rose Bradford.

Dr. Samuel Jones Gee, one of the most distinguished of British clinical teachers, died recently at the age of 82. For many years he was one of the active staff of St. Bartholomew's Hospital. It was in the wards of that institution that he taught and was revered by so many generations of students.

Canada is not the only place where there appears to be great abuse of hospital privileges by patients. *The Antiseptic* is vigorous in its condemnation of the system in Madras. India, whereby those who can afford to pay for medical and surgical attendance evade doing so by going into a hospital and securing free treatment. This causes much loss to the general practitioner.

University Medical College located in Kansas City has made some important changes in its curriculum. It has made arrangements with Medical Colleges throughout the country whereby these will do the first two year's work of a regular medical course. The students will be admitted into the University Medical College of Kansas City to complete their course. There will be furnished a thorough course on bacteriology and pathology. The x-ray equipment is to be the very best obtainable.

Calf Lymph and Tuberculosis was up for discussion in the House of Commons. Mr. Goldstone asked the President of the Local Government Board whether, in view of the fact that the report of the Commission on Tuberculosis stated definitely that secretion of the cow, such as milk, could communicate tuberculosis to human beings, he would cause inquiry to be made as to whether tuberculosis was not similarly communicable to human beings by means of vaccination with calf lymph. Mr. Burns answered that the matter had already been carefully investigated, and it had been conclusively shown that there was no risk of tuberculosis being communicated to human beings by means of glycerinated calf lymph.

OBITUARY.

ALEXANDER STEWART, M.D.

A medical practitioner of excellent standing in his part of the country was laid to rest 11th September in Palmerston Cemetery in the person of Dr. Alexander Stewart. Dr. Stewart commenced practice in Palmerston some 39 years ago, and continued here until compelled to give up owing to ill-health in April of this year. For the last few months he had lived in Toronto, where he died on the 8th ultimo. The funeral was the largest ever held in Palmerston, showing the universal esteem in which the doctor was held by the community. The funeral service was held in Knox Presbyterian Church, and was conducted by the Rev. R. A. Cranston. Members of the medical fraternity from the neighboring towns of Clifford, Harriston, Mount Forest, Guelph, Moorefield, Drayton, Listowel and Alma gathered to pay their last respects to an able and kindly confrere. In addition to his medical practice, Dr. Stewart established and carried on with much success the Ontario Vaccine Farm. He is survived by his widow and three daughters.

EDWARD ADAMS, M.D.

One of the best known homeopathic physicians in Toronto, Dr. Edward Adams, of 596 Sherbourne Street, died suddenly at Port Hope on 15th September. He had gone there for a few days' outing with friends and was seized with a stroke on Monday and had a rather severe fall. He never regained consciousness. His body was brought to Toronto. Mrs. Adams was on the Atlantic, homeward bound from England. Dr. Adams was 65 years of age, and was the son of the late Rev. T. Thos. Adams, a well-known Methodist minister, of Galt. He had practised in Toronto for a quarter of a century, studying in Cleveland and practising in Harriston before settling in Toronto. He is survived by Mrs. Adams and two daughters, Mrs. W. H. Eddison, of Philadelphia, and Miss Caro Adams, of Toronto.

ALFRED POOLE, M.D.

Dr. Alfred Poole died in Vancouver during July. He was a graduate of McGill, and located in Vancouver in 1893. He was a member of the staff of the General Hospital in that city.

LOUIS H. MORSE, M.D.

Dr. Morse died in the latter part of June at his home in Digby, Nova Scotia. He was born at Ridgetown in 1868. He graduated from Acadia in 1891, and then in medicine at McGill in 1897. He entered into partnership with Dr. Kinsman, of Digby, and later on purchased his practice. He took a lively interest in medical societies.

LUCIAN J. BELLIVEAU, M.D.

Dr. Belliveau practised at Shediac, N.B., where he died in the end of July. He was born in New Brunswick in 1860. He was a graduate of Laval of the class of 1884. He was at one time mayor of Shediac, and was an active member of medical societies, and also a very public spirited citizen.

HOWARD M. CHURCH, M.D.

Dr. Church, of Montreal, died in the Montreal General Hospital, 31st July. He was a native of Quebec, being born in 1871. He took his degree from McGill in 1896. He was sometime house surgeon to the Montreal General Hospital, and was for ten years one of the demonstrators of anatomy at McGill. He took an interest in military affairs.

CHRISTOPHER M. LANG, M.D.

Dr. Lang was educated at the University of Toronto, and graduated in medicine at McGill in 1875. He located in Owen Sound, Ont., where he continued his practice until the time of his death. He took a keen interest in medical, educational, and municipal affairs. He died on July 26th.

BOOK REVIEWS.

DISEASES OF THE NOSE AND THROAT.

By St. Clair Thomson, M.D., F.R.C.P., F.R.C.S., Physician for Diseases of the Throat and Professor of Laryngology in King's College Hospital, London. 791 pages, with 18 plates and 294 figures in the text (1911). Price, \$7.50. London: Cassell & Co.; Toronto: D. T. McAinsh & Co.

A work on diseases of the nose and throat from the pen of Dr. St. Clair Thomson may well be expected to lay before the profession the best

that can be said upon the subject. In the present volume this may be said to be the case. The author has covered in a very thorough manner the diseases of the nose and throat and the accessory parts. The illustrations are most attractive and accurate. The plates in color would satisfy the most exacting critic. The paper and typography are the best in modern bookmaking. The well-known firm of Cassell & Company are noted for this good work in book-making, and this volume is one of their best examples. The text of the book is full and trustworthy. For the general practitioner it will furnish a genuine guide on all the conditions he should attempt to treat, and map out clearly what should go to the specialist. For the specialist this book will prove what the saw is to a carpenter, one of his bench tools that he cannot do without. It should close to the hand of every specialist.

DISEASES OF THE EYE.

A Manual of the Diseases of the Eye for Students and General Practitioners, by Charles H. May, M.D., Chief Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York, 1890-1903; Attending Ophthalmic Surgeon to Mt. Sinai Hospital, New York; Consulting Ophthalmologist to Bellevue Hospital, to the French Hospital, to the Red Cross Hospital, and to the Italian Hospital, New York. Seventh edition, revised. With 362 original illustrations and 22 colored plates. New York: William Wood & Co., 1911. Price, \$2.00 net.

Dr. May's book is well known. Six editions have been used up by the medical profession, and the demand called for a seventh edition. The author has carefully revised the book, and we have in a neat volume the best that can be said upon the diseases of the eye. Dr. May is gifted with the power of stating in a concise form what one ought to know about these diseases. We can cordially recommend this volume as well calculated to suit most practitioners. The book is got up in very attractive form.

SENSIBILITY OF ALIMENTARY CANAL.

The Goulstonian Lectures on the Sensibility of the Alimentary Canal, delivered at the Royal College of Physicians, London, on March 14, 16, and 21, 1911, by Arthur F. Hirtz, M.A., M.D., F.R.C.P., Assistant Physician and Physician in Charge of the Department for Nervous Diseases, Guy's Hospital, London. Henry Frowde, Oxford University Press, and Hudders & Stoughton, Warwick Square, E.C., 1911. Toronto: D. T. McAlinsh & Co. Price, \$1.50 net.

These lectures appeared in the LANCET. There has been made a division into chapters. The book is a most interesting one to read, and contains a large amount of very useful knowledge. We can advise a careful perusal of this book as one will repay the time and expense.

PROGRESSIVE MEDICINE.

A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M.D., assisted by L. F. Appleman, September, 1911. Vol. 13, No. 3; whole number 51. Lea & Febiger, Philadelphia and New York. Price, \$6 per year.

This volume has four leading articles. The first is on diseases of the thorax by Dr. W. Ewart; the second is on Syphilis and dermatology by Dr. W. S. Gottheal; the third is obstetrics by Dr. E. P. Davis; and the fourth is on nervous diseases by Dr. W. G. Spiller. These articles are the very best possible, and give a thorough review of what has been done in these departments recently, together with the experience of these excellent teachers.

NEW JERSEY BOARD OF HEALTH.

Thirty-fourth Annual Report of the Board of Health of the State of New Jersey, 1910, and Report of the Bureau of Vital Statistics, Trenton, New Jersey. State Gazette Publishing Company, Printers, 1911.

This report is full of very useful information on vital statistics. There is much useful information on contagious diseases, their spread and their prevention. The volume is well worthy of a careful perusal by all who may be interested in public health questions.

MEDICAL DICTIONARY.

Lippincott's Medical Dictionary. A vocabulary of terms used in Medicine, Dentistry, Veterinary Sciences and the allied sciences, with their pronunciation, etymology and signification, including much collateral information of a descriptive and encyclopedic character by Henry W. Cattell, A.M., M.D. Second Edition. J. B. Lippincott & Company, Philadelphia, London and Montreal.

This is an excellent dictionary of medical terms. It is well bound in flexible leather. It has a thumb index. The paper, type and illustrations are all that could be desired by the most exacting. Any one who has a copy of this dictionary need not go any further in making additions along this line to his library.

MISCELLANEOUS MEDICAL NEWS.

TUBERCULOSIS DYING OUT.

"Consumption is dying a natural death," said John Burns optimistically at the annual conference of the National Association for the Prevention of Consumption.

Mr. Burns said there was no comparison between the London milk shop of to-day and that of thirty-five or forty years ago, but there was still room for improvement. Tuberculosis in all its forms was a declining disease. He thought that in twenty-five or thirty years its annihilation ought to be effected and consumption ought to be only a memory of the past just as typhus, leprosy, and plague were now.

Facts justified this optimism. He quoted the following figures showing the decline in tuberculosis in the last ten years: Decrease—England and Wales 19 per cent. ; Scotland, 24 per cent. ; Ireland, 24 per cent. ; Germany, 18 per cent. ; London, 30 per cent. ; Berlin, 24 per cent. ; Paris 3 per cent.

SALE OF PATENT MEDICINES.

Nearly \$7,000,000 worth of "patent medicines" were exported from the United States in the last year, and for the past decade the aggregate amounts to more than \$50,000,000.

These figures, as compiled from the official records of the Bureau of Statistics, Department of Commerce and Labor, include only that class of exports designated as "medicines, patent and proprietary," which the exports in 1911 were \$6,783,020 to foreign countries and more than \$250,000 to the non-contiguous territories of the United States, and do not include the numerous articles exported for use in the preparation of medicine, such as ginseng, which amounts to more than \$1,000,000 annually, roots, barks and herbs, and other articles of this character.

Fifteen years ago the value of the exports of "patent or proprietary medicines" amounted to less than \$2,000,000 per annum ; in 1900 the total was but \$3,000,000 ; in 1905, \$5,000,000 ; and in 1911, practically \$7,000,000, the total for that year being larger than that of any other year. The countries and colonies to which the medicines were sent last year numbered 80, scattered over every grand division and throughout the islands of the sea.

MUST NOT EXPOSE FOOD.

Dust, flies and animals must be kept off fruit exposed in Toronto for sale. The dealers may as well understand this now. Magistrate Denison had a number of them, all foreigners, before him, and he fined them \$5.00 and costs or thirty days. Each of them paid \$7.35, which would have bought a lot of netting to properly protect the fruit.

His worship intimated very plainly his attitude in the matter when one of the defendants said he would not fix his fruit up properly because his competitors would not do so.

"I am going to see what can be done to increase this fine to forty or fifty dollars if this persistence to disregard the law continues," said the Colonel.

THE PUBLIC HEALTH EXHIBIT.

The Provincial Board of Health of Ontario did a good service to the public when it arranged for the Health Exhibition at the Toronto Industrial Fair. When we say the Board of Health we really mean its energetic and capable secretary, Dr. J. W. S. McCullough. This Health Exhibition called forth unlimited praise from Earl Grey down.

The exhibits were numerous and important. They showed charts for the conservation of vision, the prevention of infant mortality, and models for ventilation. The undertaking was well worthy of the attention it attracted. The educational value will be far reaching and valuable.

During the days of the exhibition a series of talks on health were given. Among those who took part in these were Dr. C. J. Hastings, M.H.O. for Toronto; Dr. Helen MacMurchy, Dr. J. A. Amyot, Dr. Connell, Kingston, Dr. C. G. Hewitt, Ottawa, Dr. G. D. Porter, and Dr. W. H. Doherty.

We hope that this feature of Toronto's great exhibition may be repeated in future years. Knowledge is power. No where is this power of more value than in the fight with disease.

THE METAL TRADES AND DENTAL CLINICS.

The following resolution was adopted by the Metal Trades Council of Toronto at its regular meeting of July 25th, 1911.

RESOLUTION ON CLINICS AND MEDICAL INSPECTION.

Whereas, investigation of our schools have shown that the children's teeth are in a deplorable condition of neglect and decay, and,

Whereas, the preservation of the teeth is essential to good health and good health essential to the enjoyment of life, and

Whereas, owing to the poverty or neglect of parents, large numbers of children suffer from an insufficiency of medical care, and

Whereas, money spent upon the conservation of public health is well invested, the prevention of disease being much cheaper than its cure and the maintenance of a higher standard of industrial efficiency more economical than permitting physical deterioration, to say little about the human side of this matter, therefore, be it,

Resolved: that the Metal Trades Council of Toronto place itself on record as favoring free medical treatment as well as free medical inspection of school children, and that, as a step in this direction, it call upon the Board of Education to establish free dental clinics in connection with the public schools, the children's teeth to be periodically examined and repaired absolutely free of charge, this service to be rendered to all alike, without any taint of charity, and be it, further,

Resolved, that we approve the expenditure of any sum of money necessary for this purpose.

Copies of this resolution to be sent to the Board of Control, the Board of Education, the Medical Health Officer, the daily press, various medical journals, the Socialist press, and numerous organizations, including the labor unions with the request that they take the matter under consideration and communicate with us what action they take with regards thereto.

Joseph Helliker, Secretary, 191 Bolton Avenue, Toronto.

THE VALUE OF SANATORIUM TREATMENT.

By Sir CLIFFORD ALBUTT, Sir LAUDER BRUNTON, Sir WILLIAM OSLER,
and Sir ARTHUR LATHAM.

The public has formed a wrong impression of the value of sanatorium treatment, for it has not grasped the facts which prove that, in many cases, owing to the severity of the disease present, it must be useless; that in a few instances it is actually harmful; and that in many cases this method of treatment need not be carried out at an institution. Again, a number of people are under a misapprehension as to the meaning of sanatorium treatment. In many quarters it is considered to be synonymous with an existence under open-air conditions together with an excessive supply of nourishing food. Fresh air and food play an important part it is true, but the cardinal factor in the treatment is the constant and skilled regulation of the amounts of rest and exercise prescribed from day to day for each individual patient.

In order that these misapprehensions may be cleared away it is necessary to point out what takes place during the arrest of consumption in a given patient, and what are the principles of treatment. Consump-

tion, as is well known, is due to the presence of minute organisms, called tubercle bacilli, in the lung. The only protection we have against these invaders is what may be termed comprehensively the defensive forces of the body. What these forces are we do not exactly know; but they have representatives in the blood and other fluids of the body, the tissue cells, the blood cells, etc. There is no drug which has a specific action upon tuberculosis. The vaccine known as tuberculin has a specific action, but there are a number of limitations to its power; one which may be mentioned here is that in many cases of consumption we have to deal not only with the tubercle bacillus, but also with other organisms against which tuberculin exerts no protective action.

The defensive forces of the body successfully combat and defeat the tubercle bacillus in an overwhelmingly large proportion of cases. That this is so is shown by the result that practically every man or woman over 35 bears evidence—available after death—of having suffered from tuberculosis. In the vast majority of these cases the tubercle bacillus has been routed, and this even without the individual ever knowing that he has contracted the disease.

What determines whether the defensive forces or the bacilli are to prove victorious? Naturally the defensive forces must be put in the best possible condition to fight. They require a constant supply of pure, fresh air. Wind should also be avoided, as it increases the tendency to cough. Again, the defensive forces require a proper supply of good nourishing food with sufficient fatty food, such as milk, cream, butter, potatoes, etc., together with a careful regulation of the digestive processes.

These requirements do not, of course, in themselves, necessitate a sanatorium, but, in the majority of cases amongst the working classes, it is difficult to provide them except in such an institution.

The chief reason which makes treatment in an institution a necessity is the need for constant supervision. This can only be explained by a consideration of certain pathological processes. The bacilli manufacture a poison—called tuberculin. This poison has a local effect on the lung in which they are present, causing destruction of tissue and so leading to cough, expectoration, blood spitting, and the signs detected by the stethoscope. The local action of the poison also stimulates a response from the local defensive forces. A more important fact is that some of the poison manufactured by the bacilli is absorbed by means of the lymph stream into the general circulation of the blood. If this poison in the blood stream is in excess of the powers of the defensive forces of the body to deal with, it leads to lassitude, loss of appetite, loss of weight, sweating and fever. If the dose of poison is a small one, the defensive forces of the body are stimulated to attack the bacilli. They go to the seat of conflict, surround the bacilli, and as the result of repeated stimu-

lation by further small doses of poison eat up the weakened bacilli, and so in time arrest the disease. If the dose of poison is a larger one than the defensive forces can deal with, the latter are overpowered; the bacilli are left in command, multiply, cause the disease to spread in the lung, and pour out more poison, which, as already said, leads to fever, sweating, loss of weight and appetite, and all the distressing symptoms of advancing consumption.

Treatment must obviously be directed then to keep the dose of poison absorbed from the diseased area into the blood at such an amount that it stimulates and does not paralyse the defensive forces of the body on which we are so dependent.

The amount of poison absorbed depends in large part upon the amount of lymph and blood which goes through the diseased portion of the lung in a given time. A larger quantity of lymph and blood must automatically sweep out a larger quantity of poison. The quantity of lymph and blood which goes through the lung in a given time depends largely on the physiological law that the more work an organ has to do the greater must be its supply of blood and lymph. If a lung moves more than usual, as in coughing, it receives immediately a larger supply of blood. If a man walks several miles, more blood and lymph will go through his lung, and, consequently, in the case of a diseased lung, more poison will be swept out than if he lay quietly on a sofa during the same period of time.

Movement, therefore, determines the quantity of blood and lymph which goes through the lung; this in turn determines the amount of poison swept into the general circulation, and this again determines the task which the defensive forces have to meet. In treatment, therefore, if the bacilli are not to be allowed to spread, and the disease to extend, the amounts of rest and exertion must be carefully and constantly regulated according to the ever-varying symptoms of the patient.

It follows that in all cases of consumption where the dose of poison absorbed is capable of being in excess of the powers of the defensive forces—that is, in the majority of such cases in the class chiefly affected by the Insurance Bill—constant skilled medical supervision is only possible in the institution which is usually called a sanatorium. It also follows that this constant supervision is not so essential in cases in which the defensive forces are fully capable of dealing with the poison absorbed into the general circulation.

Cases of consumption may be roughly divided into four classes.

Class I. Those patients who become infected and recover without knowing that they have been infected. In these the dose of poison absorbed is practically never beyond the capacity of the defensive forces, and so acts as a stimulant.

Class II. Those who would recover if given a holiday at the sea-side or some measure of outdoor treatment. In these cases the defensive forces want assistance. The insanitary conditions, want of food, etc., under which the patient lives, diminish the capacity of his defensive forces, and so enable the bacilli to make further inroads. When the patient is removed from these devitalizing conditions his defensive forces automatically become able to fight better, and to deal adequately with such doses of poison as may be absorbed. Consequently, in such cases, were we in a position to gauge the exact condition of affairs, treatment in a sanatorium would be unnecessary. This in the majority of instances we cannot do. It is the best policy, therefore, to send such cases to a sanatorium in the first place. When such supervision is possible the duration of treatment will, of course, be much shorter than in the case of those who properly come under Class III.

Class III. Those who need careful treatment in a sanatorium. In this class the dose of poison is generally greater than the capacity of the defensive forces, and therefore, the amounts of rest and exercise to be taken require constant supervision.

Class IV. Those who are going to die from infection, whatever may be done for them. This failure is probably due to:

1. The incapacity of the defensive forces to respond.
2. The excess of the absorbed poison even in absolute rest is beyond the capacity of the defensive forces.

These conditions can be ascertained only after skilled and close observation.

It is clear, then, in the treatment of cases of consumption in which recovery is not going to occur spontaneously, the defensive forces require careful nourishment, in the shape of fresh air and good food, and, above all, the amount of rest and exertion must be carefully regulated from hour to hour.

It does not require much thought to see that, in a national campaign dealing with persons whose income is below £160, treatment in efficient sanatoriums is a vital necessity.

It is asserted that tuberculin, used in dispensaries for patients who continue to work, gives results as good or better than treatment in a sanatorium. Treatment by tuberculin in Class I or in Class II is well known to give excellent results, but so does practically any other form of treatment. In Class III, where doses of poison are, on the whole, in excess of the capacity of the defensive forces, tuberculin cannot safely be used except under *constant* supervision. If the regulation of the absorption of a man's own poison—his own tuberculin—requires constant supervision, it follows that the administration of prepared tuberculin requires the same close observation.

The success of the so-called tuberculin dispensaries rests largely on the fact that Class I and Class II are chiefly treated at them. A further part of their success is due to the many instances in which the diagnosis of the presence of active disease is faulty, with the result that many persons are treated with tuberculin and labelled as cures in whom the disease has previously been arrested. The fact that the physicians to the hospitals for diseases of the chest send their patients to sanatoriums is a strong testimony to their usefulness; for it is much more lucrative (to the physician) to give tuberculin than to send patients to be treated elsewhere. Of the value of tuberculin there is no question. Its use is of great value, not only in Class II, but also in Class III—that is, in patients who require sanatorium treatment. We come, therefore, to the conclusion that neither sanatorium treatment nor tuberculin should be depended upon solely, but that both should be used under conditions which facilitate the closest supervision.

If sanatorium treatment has not hitherto met with universal acceptance as efficacious in a campaign against consumption, the mistrust is due to a number of causes. In the first place the majority of existing so-called sanatoriums are inefficient, and the treatment given is not "sanatorium treatment," but a treatment in an institution labelled a sanatorium, and consisting of little more than fresh air and abundance of nourishing food, but without adequate medical supervision and the necessary regulation of rest and exercise. The results obtained by these inefficient sanatoriums have been regarded by the public, and by many members of the medical profession, as the results of efficient sanatorium treatment, and have done much to discredit it. The second reason is that sanatorium treatment has been asked to do the impossible, and has been regarded in some quarters as sufficient in itself, and as a certain cure for every case of consumption. No responsible member of the medical profession, no level-headed layman, has ever regarded the treatment in this light. The sanatorium is an important link, but only a link, in a comparatively long chain. Unless it forms a part of a carefully thought out system, embracing, amongst other things, dispensaries, hospitals, homes for advanced cases and the dying, careful disinfection and after-care of patients when they leave the sanatorium, together with assistance to the breadwinner's family whilst he is under treatment, it cannot help us much to eradicate consumption. Even sanatorium treatment does not cure all forms of pulmonary tuberculosis, and we can scarcely anticipate that any form of treatment ever will prove very efficacious in advanced and long-standing disease. It is fair to condemn sanatorium treatment because it cannot accomplish the impossible? Again, if a working man in an early stage of consumption is sent to an efficient sanatorium, there is every prospect of the disease being arrested; but, if he is allowed to

return to those conditions under which he contracted the disease—hard work, bad air, insufficient food—the disease will almost certainly relapse. It is fair, when this happens, to say that sanatorium treatment is of no avail?

The third reason is the fact that in the past erection and maintenance of sanatoriums have cost far too much. This objection no longer holds, as, apart from the cost of land, a sanatorium of a permanent character can be erected and equipped for a little over £100 a bed. The cost of maintenance and administration should amount to rather less than 25s. a week per patient. The fourth reason has been the difficulty of making such arrangements for maintaining the family when the breadwinner is away, that the patient may be persuaded to go to a sanatorium early enough, and to stay long enough. Much of this difficulty, however, should be swept away by an intelligent administration of the Insurance Bill.

Sanatorium treatment, as a link in a chain, confined to those who are capable of being cured within a reasonable period and supervised by a competent and special trained medical man with administrative capacity, is one of the most valuable offensive weapons we have to-day in our fight against consumption. We have shown that its value in the past has been obscured for several reasons—the inefficiency of many sanatoriums, improper selection of cases, inadequate length of treatment, inadequate “after-care,” and the like. In the future most of these defects should be removed by efficient administration. In the past many men did not apply for treatment because they knew there was no likelihood of it being obtained in time, as the sanatorium accommodation was insufficient for more than about 1 per cent. of the consumptive population. Under the new Act there should be much greater accommodation, and this in itself should do much to secure treatment in the earlier stages of the disease and to rehabilitate sanatorium treatment in the opinion of the general public.

(Signed)

CLIFFORD ALLBUTT.

LAUDER BRUNTON.

ARTHUR LATHAM.

WILLIAM OSLER.

—*British Medical Journal*, July 15, 1911.

FLIES AND INFECTION.

A fourth report on flies as carriers of infection issued recently by the Local Government Board contains a continuation of Dr. Graham-Smith's

experimental work on the relation of flies to bacteria, an investigation of their relation to parasitic worms by Dr. Nicoll, and a series of observations on the flight of flies by Dr. Copeman and others.

The primary object of Graham-Smith's experiments was to ascertain whether flies could infect fluids, such as milk, on which they feed. As in many other instances of a like nature the experimental demonstration of this point seems at first sight superfluous. If one can infect milk by inoculating it with a platinum needle or a brush there appears no reason to doubt that the same can be done by means of a fly. The important point in the investigation, however, is the determination of the length of time during which such a fly may remain infective. In the case of the house-fly it is shown that this may continue for at least eleven days, and that with non-sporing organisms the infection is conveyed in the alimentary tract of the fly, but with spore bearers, such as *B. anthracis*, the legs and wings remain infective for a like period. A more extended series of observations was made with the blow-fly, and it was found that by certain cases infection might be derived from the legs and wings as late as the thirteenth day, even in the case of non-sporing organisms.

This result, however, appears to depend entirely on the conditions of experiment, and it was only obtained when the flies were fed on thick syrup, which, clinging to the legs, necessitated frequent cleansing, leading in consequence to reinfection from the alimentary canal. When milk was used instead of syrup infection disappeared from the legs at a much earlier period, and there is thus no reason to doubt the correctness of Graham-Smith's previous conclusion (third report) that non-sporing organisms do not survive long on the external surface of flies. The most extended series of experiments showed that blow-flies could infect milk or syrup for as long as twenty-six to thirty-one days after they had been fed with such organisms as *B. prodigiosus* and *B. pyocyaneus*.

The question of the transmission of bacteria from the larvae to the adult flies was also taken up. This is an important matter in view of the fact that larvae are more liable to come into contact with infective materials than adult flies are; and also from the further consideration that Faichnie has suggested that *B. typhosus* may be transmitted in this way. To test this Graham-Smith employed *B. anthracis*, *B. typhosus*, *B. enteritidis*, *B. prodigiosus*, and *Vibrio cholerae*. The larvae were allowed to feed on cultures of these organisms, then transferred to sterile vessels in which they emerged. In the case of anthrax, transmission in this manner was readily demonstrated. The bacilli were recovered from the intestine of flies as late as eleven days, and from the legs as late as nineteen days after contamination, and these bacilli were shown to retain their virulence. In the case of the other organisms, however, the experiments

were entirely negative, a result which affords evidence that with the blow-fly at least transmission of such infection does not occur in this matter. Graham-Smith does not deny the possibility of this method in the case of the house-fly, but we may venture the opinion that in this case also the same negative result will probably be obtained. It appears as if non-sporing organisms such as the typhoid bacillus are unable to withstand the changes accompanying metamorphosis, and that they are killed off either by phagocytosis or by the growth of certain other bacteria. The frequent occurrence in recently emerged flies of bacilli suspiciously like *B. typhosus* and *B. enteritidis*, as noted by Graham-Smith, is probably not without significance in this connection, and will undoubtedly demand further attention.

Dr. Nicoll's report deals with the transmission of the eggs of parasitic worms through the agency of house-flies. This is a matter which has given rise to much conjecture, but, as he remarks, very few actual observations have been recorded. The only investigations of any importance were made in Italy nearly thirty years ago by Grassi, and twenty-three years later by Calandruccio. Their observations left little doubt that the fly was an extremely probable agent in the dispersal of certain worms—notably *Hymenolepis nana* and *Trichocephalus dispar*. They also showed that the eggs were carried in the intestine of the fly and deposited in its excrement. Dr. Nicoll's work yields ample confirmation of these conclusions, and at the same time brings out several new points of general importance. One of the most interesting facts which both he and Graham-Smith remark upon is the fly's habit of cleansing itself. This apparently hygienic procedure might at first commend itself, but, although it serves to get rid of gross contamination, it results in a renewed infection of the legs and body from the proboscis. Nicoll sums up the general facts which are known in regard to the life-history and mode of transmission of parasitic worms and the characters of their eggs. The size of the latter appears to be the most important factor in their relation to flies, for the ordinary house-fly is unable to swallow particles exceeding 50 microns in diameter. This fixes a limit to the size of egg that can be ingested, and, as many parasites produce eggs exceeding this size in one or both diameters, they must be much less likely to be disseminated by flies. The experiments were conducted chiefly with the tapeworms, *Hymenolepis diminuta* and *Taenia serrata*. The former produces eggs exceeding the limit; the later much under. It was found that the eggs of *Taenia serrata* could be ingested in hundreds, that they might remain in the intestine of the fly for two or three days without being destroyed, and that, when deposited, they retained their infectivity. It was further noted that faeces containing tapeworm segments afforded flies the

opportunity for contaminating food for at least a fortnight after exposure. With regard to the conveyance of eggs on the external surface of flies, although this was demonstrated several times even in the case of such large eggs as those of *Hymenolepis diminuta*, Nicoll is evidently not inclined to attach such far-reaching importance to this mode of transmission as to that by the intestine, and in this respect he is in agreement with Graham-Smith in the case of bacteria. It is obvious, however, that, where foodstuffs and infective excremental matter are separated by no great distance, external conveyance is the most ready means of transmission.

The results obtained by Copeman, Howlett, and Merriman on the range of flight of flies are rather interesting. They experimented with marked flies, which were liberated in large numbers and afterwards recovered at various parts. They found that the direction of flight was determined to a considerable extent by the prevailing wind, and that the distance might be as great as 1,700 yards. Two flies were captured at a distance of 800 yards within forty-five minutes after they had been liberated. It is evident, therefore, that flies may and do travel for a distance of about one mile, and this fact must be reckoned with in sanitary administration dealing with manure heaps and the possible spread of infection from them by means of flies. Reference may be made here to a short note by Flexner and Clark on the contamination of the fly with the virus of epidemic poliomyelitis. This indicates another direction in which suspicion has fallen on the house-fly. The note in question gives the first experimental evidence of the possible spread of this disease by flies. It shows that the virus can be recovered from flies which had fed on an infected spinal cord forty-eight hours previously. The circumstances of the experiment, however, appear to be somewhat unnatural.

These various investigations have undoubtedly added much of a concrete nature to our knowledge of the subject and have brought us a step nearer to a summing up and verdict, but until more is known of the biology of flies, and especially their natural relation to pathogenic bacteria of enteric origin, we can only suspect and take measures accordingly.—*British Medical Journal*.

MEDICAL PREPARATIONS, ETC.

THE WEIGHT OF EVIDENCE.

If professional endorsement of the therapeutic efficacy of a remedy by men of recognized reputation, further supported by a successful existence of over a quarter of a century counts for anything, it must then be logical

to presume that such a product is worthy of a trial in conditions where it is clinically indicated.

No greater an authority upon gynaecological diseases than Sims could be quoted, and from the fact that he prescribed and recommended the use of Hayden's Viburnum Compound in certain gynaecological and obstetrical conditions, is weighty evidence of its therapeutic efficiency and reputation which it enjoyed with the older members in the profession.

That it has continued to serve as a satisfactory remedy since the time of Sims, in the treatment of dysmenorrhœa, menorrhagia, metrorrhagia, threatened abortion, rigid os, etc., its increasing popularity with the profession indicates which should warrant it worthy of a trial in these diseases, when they are presented to you.

To those physicians not familiar with the genuine H. V. C., as originated by Dr. Wm. R. Hayden, a sample with formula and literature will be forwarded upon request to the New York Pharmaceutical Co., Bedford Springs, Bedford, Mass.

PREPARE FOR SCHOOL DAYS.

And now the little army of young humanity, after the long vacation, trips back to school to commence the long period of mental and bodily stress and strain inseparable from indoor confinement and long hours of work and study. Is it not the part of wisdom to see that they are well prepared for what, to many of them, is really a serious ordeal?

If the boy or girl (especially the girl at the age of puberty) is anæmic, easily tired, pale and listless, it is certainly a good plan to correct this condition at once, rather than to wait until the condition is more serious. If the young pupil is fortified by the toning and building up of blood and tissue, the prevalent school infections, measles, scarlet fever, and diphtheria, are much more likely to pass them by. Pepto-Mangan (Gude) is especially indicated as a blood tonic and general reconstituent for children, as it is palatable, easily taken, free from disturbing effect upon the digestion, and devoid of constipating action. It can be taken for any length of time without danger of injury to the stomach, and its effect is soon noticeable in increased appetite, improved color, better spirits and increased weight.

READ THIS, DOCTOR.

Hundreds of physicians fell by the wayside in the wide-spread grippé epidemic last spring, and many are due to suffer this coming season. Why?

Because, in a general way, they are so busy looking after patients they grow careless, and are amenable to exhausting disease conditions. They refuse to take their own prescriptions and prefer not to advise other doctors. They are given to slow suicide through personal neglect. They break all hygienic laws. Few breathe or exercise correctly, for instance.

Recall the grippe of '90 and '91; history shows a second visitation follows one like that of this year, and it is a question whether the broiling heat of July helped destroy latent germs or through enervating people, made conditions more favorable. Now is the time to increase reserve strength and health while the cool fall days are here and winter coughs and rheumatic aches are avoidable. A large number of physicians have found the assimilable oil an invaluable addition to the medical and general dietetic treatment of grippe and pneumonia attacks, as well as in tuberculosis.

Increasing quantities of Scott's Emulsion are prescribed annually because it is an honest, reliable preparation. We do not hesitate to say there is no cod-liver oil emulsion that is comparable with it. Not one drop of alcohol, and 50 per cent. finest Norwegian oil in Scott's. Every drop is assimilable. If you will take it regularly a few weeks and note how much stronger and better you feel in every way, you will then have even better testimony than your patients can give you, and you will be more likely to stand up under a season's hard work. Everybody knows Scott's Emulsion invigorates.

DIATRIBES FALLEN FLAT.

The literature on American antipyretics, analgesics and anodynes is voluminous, and clinical reports from prominent medical men in all parts of this country, with society proceedings and editorial references, attest their value in actual practice in an endless variety of diseases and symptomatic affections, such as the neuralgias, rheumatism, typhoid and other fevers, headaches, influenza and particularly in the pains due to irregularities of menstruation. Antikamnia has received more favorable criticism because of its success than any other remedy known. Some critics have seemed personally aggrieved because of its American source, and that it did not emanate from the usual "color works," but their diatribes have fallen flat as do most persecutions and unreasonable and petty prejudices. The fact stands incontrovertible that antikamnia has proven an excellent and reliable remedy, and when a physician is satisfied with the effects achieved with a remedy he usually holds fast to it. That is the secret of the antikamnia success. The dose is from one to two-grain tablets. Antikamnia tablets are to-day in greater use than any other remedy of their kind.

PRESCRIPTIONS FOR ASTHMA.

Dr. P. W. Williams regards caffeine iodide as the most useful remedy in the prevention of attacks of asthma. When patients do not tolerate the iodides, he gives from five to ten grains of calcium chloride before or after the iodide. They cannot be dispensed together.

Other combinations of value mentioned by the author follow:

I.

R Nitroglyceringr. 1/200 to gr. 1/100
Sodium iodide.....gr. iii to gr. v.

One dose to be repeated every two or three hours until the attack subsides.

II.

R Sodium nitrategr. ss to gr. i
Sodium iodide.....gr. iii to gr. v

Give every two or three hours.

III.

R Fluid extract of grindelia robustam xv to m xxx
Sodium iodide.....gr. ii
Nitroglycerin.....gr. 1/200
Tincture of euphorbia pilulifera.....m xx
Spirit of chloroform.....ad ʒi

M. Sig: One to two teaspoonsful in water every two to four hours while the attack lasts.

IV.

R Fluid extract of grindelia robustam xx
Fluid extract of myrtus chekan.....m xx
Fluid extract of yerba santa.....m xx
Fluid extract of quebrachoʒi

M. Sig: One dose to be taken in two teaspoonsful of brandy in half a tumblerful of water.

Morphine may be given hypodermically in conjunction with hyoscine, as in the following:

R Morphine hydrochloridegr. 1/6
Hyoscine hydrobromide.....gr. 1/200 to gr. 1/100

To the foregoing 1-200 grain of nitroglycerin may be added, or atropine sulphate may be substituted for the hyoscine.

As a useful form of vaporized spray solution the author recommends the following:

R Cocaine hydrochloride.....gr. ii
Atropine sulphate.....gr. ii
Sodium nitrite.....gr x
Glycerinm xx
Rose water, enough to make.....ʒ ss

M. et Sig.: Five or ten minims to be inhaled through the nose by means of a very fine vaporizing spray. Repeat at intervals of twenty to thirty minutes if necessary.—*New York Medical Journal.*