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A MONTHLY JOURNAL DEVOTED TO
MEDICINE & SURGERY

VOL. XIX. HALIFAX, NOVA SCOTIA, SEPTEMBER, 1907. No. 9

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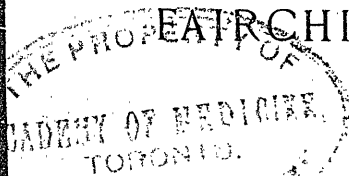
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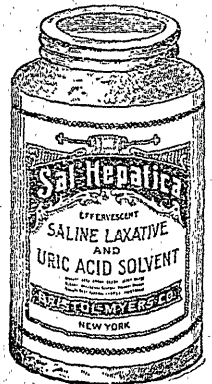
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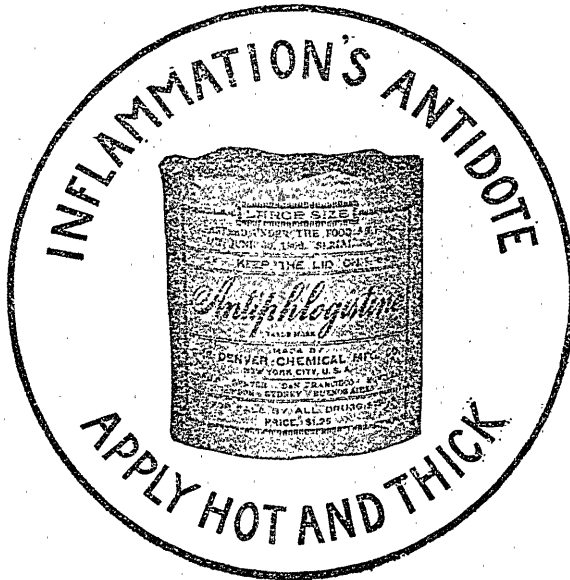
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J. W. Daniel, M.D., M.R.C.S. -	St. John, N.B.	W. H. Hattie, M.D. - - - -	Halifax, N.S.
Murray MacIaren, M.D., M.R.C.S.	St. John, N.B.	N. S. Fraser, M.B., M.R.C.S.,	St. John's
James Ross, M.D. - - - -	Halifax, N.S.		Nfld.
G. G. Melvin, M.D., - - - -	St. John, N.E.		

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is most effective in alopecia areata, leg ulcers and certain forms of eczema. The light is rich in chemical rays, but lacks deep penetration. It gives a broad volume of light, applicable over large areas, and the grade of light erythema desired can be produced and even predetermined by the distance and duration of the exposure. He concludes that such phototherapeutic measures are not to be regarded as panaceas, but as aids to other approved agents in the treatment of certain cutaneous diseases.

*

Carbolic Acid Poisoning In an article which appeared in the *Lancet* of Aug. 3, J. Maberley reports three cases in which iodine was used with much success as an antidote for carbolic acid. In two cases the iodine was administered early, before any general symptoms had developed, and exercised marked influence in relieving the burns of the mouth and throat. In the third case all the symptoms of poisoning were present. The abdomen had become tympanitic and dark and slimy stools had been passed; yet the patient made a good recovery. The dose of iodine varied from a few drops up to a dram of the tincture. It would appear that the chemical compound formed as a result of the reaction between iodine and phenol is harmless. Maberley suggests that for practical purposes the tincture of iodine and carbolic acid may be regarded as complementary in equal quantities.

*

Anæmia. Two important papers on this subject appeared in the *Journal of the American Medical Association* for August 24. The first, on the "Diagnosis of Anæmia," is by R. C. Cabot, who summarizes his conclusions substantially as follows: (1) In the diag-

nosis of anæmia all facts must be considered. The etiologic factors and the general physical diagnostic data are as important as the hæmatologic findings. This is particularly true of the secondary anæmias. (2) There are but two important types of anæmia if we are to judge by the blood examination alone. To the first type belong the anæmias due to hæmorrhage, malaria, nephritis and other diseases leading to increased destruction of red blood corpuscles. He also includes chlorosis in this class, so far as the blood picture is concerned, though elsewhere than in his conclusions he mentions the characteristic usual non-reduction of red corpuscles and low colour index. Here he says it is distinguished wholly by the absence of etiologic factors and the age and sex of the patient. (3) Pernicious anæmia can usually, but not always, be distinguished by the blood picture alone. If this is supported by the history and physical examination the diagnosis is one of the clearest and surest in medicine. The most important single fact is the low red cell count with relative increase in hæmoglobin. (4) The parasitic anæmias are not always recognizable by the blood examination, but offer no difficulties in diagnosis if the eggs of the parasite are sought. Myelophthisic anæmia is easily recognized by the evidences of its cause. The rare aplastic anæmia has usually been observed in young girls and associated with severe purpura. The blood is like that in pernicious anæmia, except that the erythrocytes are smaller and rarely contain nuclei.

In the second paper, entitled "the Treatment of Anæmia," S. J. Meltzer notices certain methods by which he thinks there has been distinct progress in the treatment of anæmia. The first of these is the method of dir-

eat transfusion introduced by Crile, whose experiments and results he considers a brilliant illustration of the value of vivisection to humanity. The second is the use of colonic irrigations in pernicious anæmia, as recommended by Herter, and successfully employed by Ditmar and Hollis. Herter's discovery that special putrefactive processes in the intestines are due to the prevalence of anærobic bacteria, particularly the *Bacillus capsulatus ærogenes*, and the parallelism of their presence with the symptoms of the disease suggested this treatment by injections, which Meltzer considers a valuable therapeutic advance. The third point touched on in his paper is the establishment of the clinical value of inorganic iron in the treatment of anæmia. His explanation of the action of ingested iron is that it, like the carbohydrates, however it may be taken in, is converted into intermediate organic compounds and enters into the reserve iron stored up in the body, which is normally in excess of the needs of the system.

*

Treatment of Cystitis

Martin W. Ware contributes a paper on "The Modern Therapy of Cystitis," to the *Medical Record* of August 24, in which he concedes that cystitis arises from bacteria conveyed from without, generally by instrumentation. The first prophylactic measure is aseptic catheterization, the operation being done under as severe precautions as major surgical operations. Urinary retention must be avoided, since it facilitates infection. In acute cystitis no instrumentation or washings are allowable. Rest, sedatives, hot applications, and internal urinary antiseptics are in order. When the acute process has subsided, instillations and irrigations may commence. Silver nitrate is one of

the most useful drugs locally, applied in various strengths, according to the conditions. In chronic cystitis obstructions to the free outflow of the urine have to be treated. Stricture must be dilated and irrigation done at the same time. Perineal section is useful for drainage only when sepsis has occurred. In vesical calculi the stone must be crushed. With prostatic hypertrophy careful catheterization or the indwelling catheter are useful. The irrigation fluids must be changed often, and bacterial examination of the urine is useful. In tuberculous cystitis the kidney is generally the source of the infection and must be treated. This form of disease will not yield to silver nitrate. Guaiacol and iodoform in oil are useful. Ulcerations must be treated by applications or curetting.



*

Trypsin Treatment

The *New York Times* recently published a telegram to the effect that a paper has been prepared by Walter Ball and E. Fairfield Thomas on the trypsin and amylopsin treatment of cancer, which will be published in the forthcoming ninth volume of the Archives of the Middlesex Hospital, London.

The paper contains the account of a careful trial of the treatment in question on a number of patients in the Middlesex Hospital, lasting from 66 to 118 days. From their observations of these cases, the authors of the paper conclude:—

"The course of a cancer, considered both as a disease and as a morbid process, is unaltered by the administration of trypsin and amylopsin."

With this conclusion Pearce Gould, who was surgically in charge of the patients, and Lazarus Barlow, the director of the cancer research laboratory, are in entire agreement.

Research Work on Cancer. The Guthrie Lecture on "Some Recent Research work on Cancer," by S. M. Copeman, appears in the *Practitioner* for August. The following tentative conclusions are regarded by Copeman as justifiable: That cancer is to some extent preventable. That it is not in the ordinary sense an infection, there being no evidence that its onset and development are due to micro-organisms. That it is the local manifestation of perverted body metabolism, one evidence being the abeyance of the normal hydrochloric acid secreting function of the gastric mucous membrane. That temporary improvement sometimes results with or without obvious delay of growth. That early and complete operative measures, when possible, furnish the only satisfactory treatment at present. That it occasionally disappears spontaneously, the tumour ceasing to grow and becoming absorbed. That continued investigation may afford accurate knowledge of the conditions which favour spontaneous cure, and that the indications thus afforded may result in the discovery of specific treatment.

*

Weak Foot. "A Consideration of the Causes and Characteristics of the Weak Foot" is the title of a paper appearing in the *Medical Record* of August 31, in which Royal Whitman, New York, brings forward a theory of the causation of weak foot, which will account for the discomfort without deformity that is often found in this condition, and a treatment that is applicable to the prevention of the condition before advanced distortion has occurred. There are two contrasting postures of the foot, that of activity and that of inactivity. In

activity the foot is incurved at the inner border and the arch is accentuated. In inactivity the foot is everted and the weight is directed toward the inner side of the sole. The abnormal persistence of the attitude of inactivity during exercise produces deformity. Abduction is caused by inward rotation of the leg upon the foot, and the astragalus supporting the leg sinks downward and inward upon the os calcis. Acquired flat foot and weak foot are an abnormal persistence of the attitude of abduction. The primary factor is the abduction, the secondary is the lowering of the arch. The symptoms are due to overstrain and injury to which disordered function has exposed the foot. Predisposing causes are insufficient support, due to congenital or acquired weakness of structure; weakness of muscles; overweight or strain, and improper attitudes, that is imperfect adjustment. Improper attitudes include toeing out, the most important bad attitude. Improper shoes are often worn. Rachitis is a cause of weakness of structure. Symptoms include bad attitude, weakness, pain in feet, knees, and even back, and deformity, with muscular spasm. Preventive treatment includes proper shoes and proper attitudes for children. Shoes should turn in. The brace used is made on an accurate plaster model made with the foot resting upon the outer border, slightly plantarflexed, and perpendicular to the table. The brace is of sheet steel extending from the bearing surface of the heel to the metatarsal bone. It is placed in the shoe, and the inner flange is pressed against the arch in positions of strain. It should hold the foot in place without discomfort. The inner side of the shoe is raised. Deformity may need to be corrected with or without anæsthesia.

Coagulation Necrosis. A paper dealing with "Factors in the Production of Coagulation Necrosis," from the pen of D. H. Bergey, appears in the *Journal of the American Medical Association* of August 24. The author declares that coagulation necrosis is usually defined as that form of death of tissue in which the proteid suffers changes similar to or identical with coagulation. He discusses the influence of bacteria in producing coagulation necrosis and the other alterations of the colloids in the body, and relates briefly the lines of experimentation pursued. He concludes by stating that the studies which he has made indicate:

(1) The coagulation of blood serum through bacterial agency is induced directly and indirectly by a coagulating and a carbohydrate fermenting enzyme produced by the bacteria; (2) that the inhibition of the effects of the carbohydrate fermenting enzyme alone, through neutralization of the organic acids produced, will annul or materially reduce the pathogenic effects that would otherwise ensue; (3) if some safe and certain method can be devised for overcoming this mode of offense by the bacteria we shall possess an additional defensive measure against bacterial action in the body.

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Bier's Treatment. V. Schmieden, of Bonn, Germany, describes Bier's treatment of tuberculosis of the joints by hyperæmia, as used by himself, in the *Medical Record* of August 17. His method depends on the recognition that inflammatory reaction in the infected parts is an effort of the system to protect itself against the bacilli, and that there is benefit in increasing artificially redness, swelling and

heat of the part. For this purpose he uses the blood, by increasing hyperæmia and at the same time decreasing the flow of blood to the joint. The hyperæmia is produced by a broad rubber bandage, applying it evenly about the limb proximally and not too close to the joint. The bandage must not cause pain at the point of constriction or in the joint, and the extremity must remain warm and the pulse unchanged. The bandage is applied for a few hours per day with intermissions. The joint must not be kept in fixation, while violent motion is not allowable. The object is to obtain anatomical healing, with mobility of the joint. Pain and inflammatory contractures disappear, active and passive motions become possible, swelling subsides, large fungous masses are absorbed, and fistulæ close. That cold abscesses form is no contraindication to treatment; this is only the attempt of nature to throw off the dead tissues. This treatment is so simple that it may be applied by the patient himself, and he may attend clinics. Resection is usually unnecessary. The best results are obtained in the shoulder, elbow, wrist and small joints. The hip and knee cannot be successfully treated. Exudative inflammation is not traced by hyperæmia. Cupping glasses are used for the breast, for glands, and fistulæ.

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Lumbar Puncture F. C. Eve contributes an article to the *Lancet* of July 27, entitled "Cerebral Hyperæmia as a Factor in the Therapeutical Action of Lumbar Puncture, Illustrated by a Case of Tetany." He believes that lumbar puncture does good in other ways than merely by affording relief of the intracranial tension, and considers

that importance should be attached to the marked passive hyperæmia which must almost inevitably result from the removal of any considerable quantity of cerebrospinal fluid. He reports a case of tetany in which great good was accomplished by lumbar puncture. In Eve's opinion a variety of acute or subacute cerebral affections which have failed to respond to other treatment, and which threaten to become chronic, should be treated by lumbar puncture.

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Sudanophilia

Recent observations would seem to indicate that a solution of Sudan III. may be used advantageously in the study of staining reactions of the white blood cells. Among those who urge its usefulness are Cesaris-Demel, Buttino and Quarelli. The first named advises a 0.2 per cent. solution of Sudan III, and a 0.1 per cent. solution of brilliant cresyl blue, the medium for each stain being absolute alcohol. In suppurative conditions, minute droplets of some fatty substance develop in the protoplasm of brilliant red colour when the above stain is used.

Some work corroborative of the value of the sudanophilous reaction has been done by deMarchis. A great variety of suppurative lesions was studied. In a number of minor suppurations, such as boils, the reaction was not obtained, and similar failure is recorded in the case of encysted collections—as in salpingitis and pelvic abscesses of long standing. But in a large percentage of more acute manifestations, a positive reaction was secured. In two patients suffering from perinephritic abscess, and in one with suppurative pyelonephritis, where other methods of diagnosis proved unsatisfactory, the Sudan reaction was

definite, and the surgical measures undertaken proved its correctness.

In pneumonia, during the stage of dissolution, but not before, sudanophilia was found and persisted until the respiratory sounds became normal. It was found, too, after extensive fractures, and also after a meal containing an excess of fatty matter, as well as after the experimental injection of a quantity of sterilized oil.

Cesaris-Demel assumes that the fatty leucocytes represent phagocytic activity on the part of these corpuscles. DeMarchis considers them to be in themselves developmental pus corpuscles.

While sufficient work has not yet been done to establish the actual value of the reaction, it would appear that the new stain is to prove of definite utility in determining diagnosis in doubtful cases.

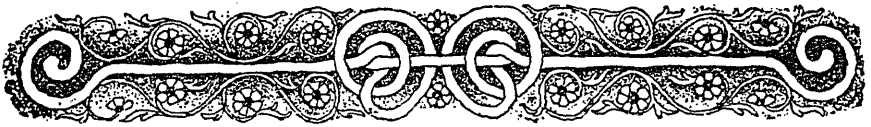
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The Tuberculosis Problem.

The experience of American sanatoria for tuberculosis discloses the lamentable fact that of the total admissions barely one third are in the early or incipient stage from which there is any great likelihood of a permanent cure. Is it not unfortunate that our own institution at Kentville, built and supported at considerable expense, has only a small proportion of its beds occupied by the kind of patients for whom it was built—and sustained? It strikes one very strongly that somewhere grave mistakes are being made. Experts as usual place the responsibility for this unfortunate condition on the shoulders of general practitioners, a view we cannot fully accept. Doubtless the profession often err in waiting too long for positive evidence from symptoms and physical signs in declaring a diagnosis or do not avail themselves of

more specialized methods such as bacteriological tests and the tuberculin reaction. Is it not the experience of most practitioners that the victims of tubercular mischief rarely present themselves for examination and treatment until the malady is fairly well advanced, and that too often in spite of advice and urgent entreaty they seldom act wisely? Only a small percentage of the victims of early tuberculosis place themselves wholly and unreservedly in the hands of those they may consult. Matters are not likely to improve very much if left to individual effort. Remedies which have proved themselves elsewhere must be adopted. There is a crying

need at present for an organization to conduct a campaign of education as to the nature of tuberculosis, how it can be prevented and how it can be cured. In this particular, Colchester county, largely through the efforts of Dr. S. L. Walker, of Truro, has made an excellent start. The membership of such an association should be wholly unrestricted, and should include every public spirited man or woman in the community; such an association by means of literature, lectures, reports, meetings, etc., would in a short time do most valuable work in the great crusade against tuberculosis.



EARLY DIAGNOSIS AND TREATMENT OF GASTRIC CANCER.

By ALEXANDER McPHERDAN, M.B.,

Professor of Medicine and Clinical Medicine, University of Toronto.

Address delivered at the Annual Meeting of the Medical Society of Nova Scotia, Windsor, July, 1907.

ALTHOUGH I have nothing new to offer either as to the diagnosis or treatment of cancer of the stomach, the enormous importance of the subject is my excuse—and I hope you will deem it a sufficient one for taking your valuable time in discussing it. The disease annually claims such a large tale of valuable lives that no amount of time devoted to its consideration and having for its object the prevention and cure of such a dread malady, can be regarded otherwise than well spent.

It is well, from time to time to stop and "take stock" of our knowledge and position regarding those maladies that are well nigh, though not altogether, hopeless, otherwise advance will be hindered and our knowledge in danger of undergoing "dry rot." Sir Wm. Church has just been reported as saying that one in twelve of all men over 35, and one in eight of women, are liable to the probability of dying of cancer, as against one in twenty-one and one in twelve some twenty years ago. However, this does not necessarily mean an increase in the incidence of the disease, although probably so. But it does mean more accurate diagnosis, and no doubt also earlier.

In typical cases of cancer of the stomach, diagnosis is easy—there is nothing easier in the field of internal medicine. Than the atypical, on the other hand, nothing can be more difficult. Such characteristic symptoms as presence of a tumour, emaciation, advanced cachexia, absence of

hydrochloric acid, abundance of lactic acid, coffee ground vomit, etc., make the diagnosis plain, but to the patient it is of little more value than post-mortem diagnosis. When such marked symptoms have developed, not only is the disease so advanced that cure is impossible, but even suffering can be little mitigated. The need is for early diagnosis while as yet the disease is definitely focal, and therefore removable, leaving the patient practically cured. Such an early diagnosis is one of great difficulty. Is it possible? If possible, no effort to make it should be regarded as too onerous because the suffering that could be relieved would be inconceivable; few greater benefits could be bestowed on humanity.

What constitutes early diagnosis—what do you mean by the term? Briefly, the determination of the occurrence of the lesion while it is still purely local, before even the neighboring lymph glands are infected. It is only during this period that it is possible to compass a complete cure. Unfortunately, it is often quite impossible to make so early a diagnosis. It would probably be much more frequently possible to do so were we quite familiar with the previous condition of the patient. It is only the family physician who can be so intimately acquainted with the patient's previous condition, as to be able to appreciate slight alterations in it.

The chemical findings, particularly the triad of stagnation, absent hydrochloric acid, and presence of lac-

tic acid, enables us in some cases to make a diagnosis even before a tumour is demonstrable. Unfortunately, by the time this triad is present, the disease is well advanced, and by this time a diagnosis can scarcely be called early, at least in most cases. It must not be forgotten also, that the triad is absent in many cases of cancer, and that it may occur in the absence of cancer.

The most usual age for cancer is about 50, but it may occur at any time from infancy to old age. It is very rare in the first and second decades; more common towards the age of 30, and grows in frequency at least to 70, and probably as age advances.

Briton long ago said that gastric cancer is "obscure in its symptoms." That is true in the great majority of cases, but in not a few the onset is abrupt.

The onset is usually insidious, beginning with occasional pressure and discomfort in the epigastrium shortly after food, and lasting a variable time. The discomfort varies, but gradually increases in frequency of recurrence and in severity. It is often accompanied by eructation of gas, usually with relief. Appetite grows less and less until there is repugnance to food. There is also some loss of strength, or, rather, at first only of energy. It can not be said that such symptoms are necessarily due to incipient cancer, in fact they occur much oftener from other causes. But, beginning after 40; in a person previously healthy, they should arouse our suspicions, and lead us to make a thorough examination. It is important to recognize and keep constantly before our minds two facts: (1.) that there are no pathognomonic early symptoms of cancer, and (2) that diagnosis in any

case is possible only by a critical consideration of the whole history and a careful study of all the symptoms.

When present, rigidity is at first so slight as only to be felt by the hand placed below the left costal margin as a faint contraction of the fundus, and lasting only a moment. Later, as the contractions become more marked and rigid, they can not only be felt, but the abdominal wall, if thin, can be seen to rise as a slight mound, which after a brief period disappears. When so marked as this it gives the patient a sensation of spasm, and there may be an audible gurgling sound as it disappears. For obvious reasons rigidity does not occur when the stomach is empty, and it is most marked if it be moderately full. It recurs at variable intervals, and may usually be excited by friction, especially by the cold hand. Gastric rigidity is a sign of much diagnostic value, as it indicates forcible contraction of the fundus excited by obstruction at the pylorus. It may begin fairly early after the obstruction has developed, probably while the disease is still localized in many cases, and in time to permit of successful resection of the pylorus, infection of the lymphatic glands not having yet occurred.

The abdomen should be carefully inspected, due care being taken to have the patient facing a good light, lying evenly on the back with the head and shoulders raised comfortably on pillows, and the chest and abdomen well exposed. I have seen very capable physicians fail in discovering a tumour because they did not observe these obvious precautions. At this early stage there are rarely signs of a tumour as one has not yet formed, but there may be

signs of spasm of the walls of the stomach as described by Cruveilhier over 50 years ago, and to which Boas has drawn attention anew under the designation of "gastric rigidity."

The stomach should be inflated in order to determine its size, position, and relation to other organs and to a tumour if such exists. For the same reason the colon should also be inflated, especially if there is a tumour of uncertain attachments.

The mobility of the stomach should be investigated in order to ascertain if it is free from adhesions to the liver or other structures above it. When such adhesions take place, the stomach cannot be held down during expiration — "expiratory fixation" (Riegel). The determination of the absence of expiratory fixation is of much importance whenever surgical measures are contemplated, as indicating that the disease is still confined to the stomach.

In palpating the epigastrium it is of much assistance to have the patient sit up in bed and rest against the examiner, who sits behind him. The examiner can then pass his arms around the patient and palpate the abdomen. In this position the abdomen is relaxed, and the liver and other organs as well as new growths, if not fixed, fall forwards and downwards and may be within reach of the physician's hands.

The left supraclavicular glands should be examined, as in some cases they are early affected. Absence of enlargement, however, is of no value as contraindicating the existence of cancer.

One of the most important steps is the examination of the contents of the stomach. It should be done under varying conditions, to determine the promptness of discharge of the

food, the powers and rapidity of digestion, the degree of hydrochloric acid secretion, the quantity of mucus present, and whether lactic acid, blood (evident or occult), pus and tumour particles are present.

Hydrochloric acid is nearly always absent in gastric cancer, even at an early stage, but it is absent also in too many people under varying circumstances to render its absence in suspected cancer more than suggestive. It is often absent in various nervous disturbances, as hysteria and neurasthenia; also in some cases of chronic gastritis and in atrophy of the gastric mucous membrane. The varying conditions under which hydrochloric acid is not secreted both with and without organic disease, and the fact that in the same case it may be absent at one examination and present even in excess at another a few hours or days later, leaves no room for doubt that the variability of its secretion is due to nervous influences.

Moore has found it absent in cancer of other organs as uniformly as in those in which the stomach is involved. Its almost invariable absence in cancer of the stomach and in pernicious anæmia, in which the gastric mucosa is found at autopsy not to be atrophic, can scarcely be accounted for, except as due to disturbance of the nervous functions, either from irritation or depression. It is probable that too much is made of the theory that most, if not all, cases of cancer with persistence of free hydrochloric acid secretion have formed on the base of an old ulcer usually with a thickened base. Excess of hydrochloric acid in gastric secretion confers no immunity from cancer; the development of cancer is usually soon followed by a diminution, and, later, by cessation of hydrochloric

acid secretion. In view of the great frequency of excessive hydrochloric acid secretion it can scarcely be possible that it does not precede in many cases the formation of gastric cancer, and disappears with the onset of the disease. Hyperchlorhydria is of very frequent occurrence, and is therefore often associated with a variety of conditions such as ulceration, catarrhal gastritis, and atony of the muscular wall of the stomach. But its occurrence is vastly more frequent than that of any of these conditions, and probably the chief reason that cancer is not more often found associated with it, is on account of the depressing influence on the secretory nerves exercised by the cancer either directly, or, more probably, through the absorption of toxins peculiar to cancer or of the gastric contents. In some cases, the secretion of hydrochloric acid is restored by the improvement resulting from the free drainage of the stomach effected by gastro-enterostomy. The suppression of hydrochloric acid secretion without ulceration or gastric stasis points to the cancer itself as the cause of its suppression. The following is an extremely interesting case of persistent hyperacidity in which cancer developed:

Col. M., aged 50, had suffered in a varying degree, often severely, for three or four years, with epigastric distress after food. The acidity was often extremely high, the gastric contents requiring at times 1 c.c. deci-normal NaOH solution to neutralize free hydrochloric acid acidity of 1 c.c. gastric contents, and 1.5 c.c. or even more for the total acidity. At times there was undue retention, and also intermittent gastro-succorrhœa. There was nothing to indicate the occurrence of ulceration. He improved well under "rest cure," but relapsed almost immediately on going quietly

about again. He declined operation for a probable pyloric lesion, although it was advised in view of the possibility of ulcer, or even cancer. A year later he submitted to operation, a gastro-enterostomy being done and carcinoma of the pylorus found, but too far advanced to permit of its removal.

A second case differs somewhat, but is equally instructive:

S. R., aged 60, a retired cavalry man, keeping hotel for some years and drinking much strong spirits. For about three years he had complained of flatulency and acidity. His weight had fallen from 212 to 155 pounds. The stomach was found much dilated and containing remains of food probably taken some days previously. On testing, the acidity proved to be about normal, although the quantity of stomach contents was much greater than normal, diluting the hydrochloric acid secretion which must therefore have been in great excess. There appeared to be an indefinite mass at the pylorus as shown on inflating the stomach. The liver was slightly enlarged and appeared considerably hardened.

With lavage, etc., he improved, gaining 10 pounds in five weeks, but the persistence of gastric stasis and the possibility of pyloric carcinoma, rendered operation without delay advisable. Owing to threatening collapse under the anæsthetic, resection of the pylorus was deemed inadvisable and gastro-enerostomy was done. For a day or two recovery was doubtful, but he slowly improved and later gained rapidly, his weight increasing 60 pounds in a few months, and his general condition became quite satisfactory, although he drank heavily again. A year later he began to be troubled with indefinite pains in the abdomen, the liver increased in size

and became irregular. There was still a small amount of hydrochloric acid in the stomach contents at the last examination made two months before his death, which took place nearly two years after the operation. Had the pylorus been fully removed, a complete cure would possibly have resulted; such would almost certainly have been the result had he come under observation a few months earlier.

Other cases might be cited, particularly that of a lumber merchant, seen a few years ago, suffering from severe gastralgia with excess of hydrochloric acid secretion. He improved satisfactorily under treatment, and went to the lumber districts to recuperate. The symptoms recurred and after a few months grew worse. I learned that he died of gastric cancer the following year. In the light of our larger knowledge there is good ground to believe that this man's life could have been saved and his health restored.

I have given these cases somewhat in detail, because they are of exceptional interest, although not very rare. In the great majority of cases there is absence of hydrochloric acid early in the history, and such absence in association with other symptoms is of material aid in making diagnosis. A few years ago absence of hydrochloric acid was regarded as almost a pathognomonic symptom; now many have gone to the other extreme and attach no importance to it. Like extreme views generally, both are wrong. Absence of hydrochloric acid is a valuable sign, but it is only one of many we have to consider in determining the condition in any given case.

The presence of lactic acid not being of common occurrence in the early stage of gastric cancer is a less

frequent, and therefore a less valuable sign than absence of hydrochloric acid. It may be found in other diseases than cancer, but rarely, if ever, in such copious quantities. It is found in from 75 to 90 per cent. of cases of cancer, so that "its presence speaks strongly for the existence, but its absence has no weight in favour of the absence of cancer" (Osler & McCrae). It is not found in free quantities until hydrochloric acid disappears, and by this time there is more or less stasis of food in the stomach, and probably some degree of ulceration has taken place.

The long bacillus of Oppler-Boas is usually found when lactic acid is present; it also appears only after the disease is well advanced.

Microscopical examination of the gastric contents can be of assistance only after ulceration has begun, and is therefore seldom available for early diagnosis. If the precipitate from the stomach contents is spread into a thin layer between two plates of glass and held against a dark background, solid particles can be readily seen and taken out for microscopical examination; the eye of the stomach tube should also be searched for any adherent particles, as well as the material got from the tube. If nothing has been obtained from the stomach it is important, in withdrawing the tube, to compress it with the fingers so that any contents or particles lodged in it may be obtained for examination. If ulceration has begun, pus, blood corpuscles, and bacteria as well as small particles of tissue from the base or sides of the ulcer, may be found; the latter may be so characteristic as to render an exact diagnosis possible.

Blood in the stomach contents is an important sign of ulceration, but it may occur without it. It may come

from varicose veins in the œsophagus, or from the stomach; the bleeding may occur with the gentlest use of a soft tube if there is even moderate retching, especially if the digestion is deranged and there has been epigastric discomfort. The bleeding is apparently due to congestion associated with an irritable state of the gastric mucosa. The condition is not infrequent after alcohol or table excess, or any condition that deranges digestion. Bleeding may be so slight as to be demonstrable only by chemical tests; in suspected cancer presence of disintegrated blood should be sought for by chemical tests in both the vomit and the fæces.

Vomiting is a very frequent symptom of gastric cancer after it has become well advanced, but it rarely occurs in the early stage of the ordinary chronic cases. In those in which the onset is sudden, vomiting is among the first and most distressing symptoms. In these, while vomiting is one of the first and most prominent symptoms, yet the progress of the lesion is usually so rapid that it has made serious advance by the time the acute symptoms begin. Such a course is frequent in cancer of the young, that is, below 30 years of age.

Dyspepsia is a frequent complaint, and coming on in one who has had no epigastric symptoms, digestion being perfectly comfortable, it should arouse suspicion, at least in those of middle life. In those doubtful cases the first step to a diagnosis is an aroused suspicion; this, if followed by painstaking and repeated full examinations, will in many cases, point so strongly to a probable diagnosis as to render operation justifiable, and if so, then advisable. But we must not lose sight of the fact that the chronic dyspepsia may also have can-

cer of the stomach, although they show no special liability to it. In the early stage of cancer their dyspepsia may improve under treatment, but soon recurs in a severe degree.

Loss of weight and strength are frequently early symptoms. They are highly significant if progressive even under careful treatment. In the early stage it is often lack of energy and vigour rather than loss of strength of which complaint is made. With this physical depression there is frequently also some, often marked, mental depression. Anæmia is usually associated and adds to their significance.

Fever has been observed in from 25 to 50 per cent. of cases, usually of the ulcerative and metastatic types, and is probably due to septic absorption or secondary inflammation. In a few cases, however, no secondary causes can be found, and in these the fever must be due directly to the cancer itself, which, like tuberculosis, appears to possess pyrogenic properties. However, temperature disturbance is rarely an early symptom.

Leucocytosis of moderate degree is frequent, but is a late rather than an early symptom, and therefore not often available for early diagnosis. Digestion leucocytosis is usually absent, but it is present in too large a minority to render it of much value in diagnosis.

The blood, apart from the moderate leucocytosis, shows no characteristic alterations. The red corpuscles are seldom reduced much below 2,000,000 per c. mm. even in extreme emaciation. Occasionally there are less than half that number. The cause of this relatively moderate diminution lies in the fact that there is much reduction also in the serum of the blood. In some cases in which there is persistent vomiting and free

gastric secretion there is even marked polycythæmia, 6,000,000 per c. mm., on account of the depletion of serum through the stomach. A further reason is lack of absorption in cases of pyloric stenosis, owing to the obstacle to the passage of fluid into the intestine.

Although these findings bear no resemblance to those of pernicious anæmia, yet occasional cases present conditions closely resembling that disease. The lemon-tint, lack of emaciation, high-colour index, and very low blood count, may be found, and there may be improvement with rest and care. There are doubtless associated conditions that cause these peculiarities in the symptoms.

The following case of secondary anæmia is interesting as showing a resemblance to both cancer and pernicious anæmia. Cancer had been diagnosed two years before I examined him in 1903, and he was referred to me as a case of pernicious anæmia. Rev. J. W. C., aged 58. He had had dyspepsia since boyhood, and occasional bleeding from piles for 20 years, the bleeding being free for some months until recently. He complained of weakness and was very pallid but not emaciated; there was a somewhat lemon tint. His physician had found less than 2,000,000 red corpuscles pe. c. mm., and 37 per cent. hæmoglobin. He gave him arsenic freely. The stomach contents contained much mucus, some recent blood, no free hydrochloric acid or lactic acid, and the food showed little digestion. A subsequent examination was attended by such profuse bleeding that no further attempt was made. On careful enquiry it was found that he had had black tarry stools from time to time for over two years. On subsequent examinations of the blood during

the following two months there was about 20 per cent. hæmoglobin and red corpuscles 2,500,000 per c. mm.—a marked secondary anæmia, evidently due to the prolonged free gastric and rectal hæmorrhages. He took no meat or vegetables, as they caused distress. His diet consisted chiefly of eggs, bread, butter and cream. He has improved greatly and looks well, but he has occasional recurrence of gastric distress followed by tarry stools. His red corpuscles are up to 5,000,000, but the hæmoglobin rarely rises above 70 per cent. He fears any further stomach examination and declines an operation.

Of the conditions that have to be differentiated from gastric cancer, the most frequent of course is dyspepsia in its various forms. Frequently this is impossible. If the condition continues to grow worse, notwithstanding careful treatment the indications are that the more serious disease exists; yet in not a few cases of functional disturbance matters grow worse even with the greatest care. There is rarely the increasing emaciation and loss of strength that marks the cancerous disease.

Ulcer is the next condition which causes the greatest difficulty in diagnosis. In cancer the symptoms, including pain, are usually more persistent, treatment fails more completely, wasting is more marked, and the anæmia and loss of strength are progressive. In ulcer there is usually a long history of stomach trouble. In cases of cancer secondary to ulcer, the pain is usually more severe and paroxysmal; hæmatemesis is frequent. The progress is rapid in such cancer cases and perforation is liable to occur.

A palpable mass may be present in each. The indurated ulcer is not

rarely mistaken for cancer even when exposed by section. It may be impossible to avoid such an error, as the cancer mass develops on an old ulcer. As a rule the general condition of the patient is much less serious in the ulcer with such marked induration, than in a cancer causing such a large tumour formation.

The following case which I saw three years ago is one of this nature. Mrs. A., aged 40, complained of marked disturbance of digestion, pain, vomiting and loss of weight. The abdomen was relaxed, and in its right lower quadrant two tumours were to be felt, one oblong, in the right iliac fossa, the other, a rounded one, lay half way between the first and the umbilicus. Both were freely movable. The one in the iliac fossa could be pushed up behind the liver and proved to be the right kidney. The second was in the pylorus as shown by inflation of the stomach. The gastric contents were copious and contained an excess of free hydrochloric acid. There was no doubt that the mass was due to gastric ulcer, as her condition was too well preserved to be compatible with so large a carcinomatous mass. If it were the latter, the lymph glands would have been infected by that time. Rest and careful treatment were therefore advised, and the progress closely watched. She improved rapidly and when I saw her three months later, no trace of the tumour could be found, and her general condition was satisfactory.

Hypertrophic pyloric stenosis may be difficult to distinguish from cancer as in both there is usually a tumour and stagnation of food in the stomach. The chemical examination may be similar in both, but blood is seldom found in simple stenosis. Hypertrophic stenosis has a protract-

ed history, but the difficulty is to exclude the development of secondary cancer.

Thrombosis of the veins of the extremities as a sign of cancer was originally pointed out by Trousseau. In his lecture on "Simple Chronic Ulcer of the Stomach," he said: "Should you, when hesitating between chronic gastritis, simple ulcer and cancer, observe a vein become inflamed in the arm or leg, you may dispel your doubt, and pronounce in a positive manner that there is cancer." Although it is rarely that a diagnosis cannot be made before phlebitis occurs, yet in occasional cases if pain occurs in the calf or thigh, and tenderness is found deeply in the calf and along the course of the femoral vein, with or without œdema of the limb, it serves to confirm what was before only suspicious.

Only last week I was asked to see a man, aged 52, ailing for some months, and showing rapid loss of weight and strength during the past six weeks, and in whom there was phlebitis in the femoral and deep veins of the calves. He also had some ascites, another sign of abdominal cancer as well as of other, especially tuberculous, lesions in the peritoneal cavity.

Unfortunately these signs, like such others as undoubted tumour, cachexia, tumour particles in the stomach contents, expiratory fixation of the stomach, etc., while positive indications of the existence of cancer, are also positive indications that the disease is too far advanced to permit of a successful radical operation.

It is unnecessary to say then that diagnosis of gastric cancer in the early stage always presents great, often insuperable, difficulties. In many cases nothing more than a

probable diagnosis can be given. There are no pathognomonic signs to aid us, so that we have to depend on the general symptoms. To properly elicit and interpret these, it is necessary to make repeated full examinations at short intervals. As in all cases of difficulty we should return to the examination of the case afresh without bias from previous examinations. None of the means should be overlooked in these examinations,—the general history, each symptom being carefully studied afresh, the colour, weight, energy, pain, discomfort, appetite for various kinds of food, etc., should be carefully studied. It should be borne in mind that in occasional cases there is improvement with gain in weight, but it does not last long, as in cancer of the stomach the nitrogen output always soon exceeds the intake. If no improvement results from a few weeks' treatment, there is additional ground for suspicion.

Early examination should also be made of the stomach contents, the motor power, position, relationship of the stomach, the blood, and the general condition. It is only by consideration of all the signs and symptoms, and their relation to one another that, in most cases, a diagnosis is possible. More mistakes arise in this, as well as in other diseases, from want of care in examination than from want of knowledge on the part of the examiner.

One of the most common causes that prevent early diagnosis lies at the door of the patients themselves. They so often regard the digestive disturbance as trivial and resort to home remedies trusting to a recovery in the near future. Thus they, in many cases, delay to present themselves until too late to hope for cure

as the surrounding structures have already become infected.

TREATMENT:—Medical treatment is powerless to cure; it can save none. There are a sufficient number of cases in which the early removal of the portion of stomach affected has resulted in permanent relief to show that surgical aid promises much if resorted to sufficiently early. The one necessity for such effective resort is in early diagnosis. Early diagnosis and early operation offer the only ground for hope. The former requires that we be alive to the possibility of cancer in all cases of stomach derangement that are at all persistent, especially after forty years of age. To have our suspicions once aroused should be the most important step towards a probable diagnosis. "Whenever a person about middle life complains somewhat suddenly of indefinite epigastric uneasiness, pains and vomiting, progressive loss of weight and energy, with anæmia, we should suspect cancer. If there is no improvement in a few weeks at most, operate to discover the condition of the stomach and act as may be necessary. A small incision under local anaesthesia allows a digital examination to guide the further steps necessary." (Mayo Robson.)

to carry out these principles, it will be necessary to operate in all cases of gastric ulcer resisting treatment, especially after middle life, and in those showing signs of pyloric stenosis. Even in early life it is the best course in obstinate cases. In the hands of specialists in gastric surgery, the results in recent years show wonderfully great success and low mortality. Operation should be advised only after the most thorough examination, and this requires expert knowledge as much as does the operation.

"To operate for diagnosis without having exhausted all other means is *wrong*, and to be condemned *ab initio*" (Munro). I am glad to be able to quote this from so able a surgeon. Operating without definite knowledge of the location of the lesion or the organ affected is to be even more severely condemned, and yet how frequently it is done!

CONCLUSIONS:

(1) More than a probable early diagnosis in gastric cancer is rarely possible.

(2) If the possibility of its recurrence is suspected, full and repeated examinations will, in many cases, afford reasonable grounds for an early diagnosis, but we must avoid being led astray by our suspicions.

(3) Cancer is a local disease in its origin.

(4) As yet there is known no chemical or medical agent other than such as caustics, X-rays, violet rays, etc., that affect its progress.

(5) Its removal while still local, results in a complete cure.

(6) Early diagnosis is then essential in every case. For this there is no pathognomonic sign.

(7) In well qualified hands, operations for removal of lesions of the stomach have become reasonably safe.

(8) It is our duty as physicians to make a reasonably probable diagnosis. Then it becomes the surgeon's duty to remove the diseased tissue with a reasonable degree of safety. Unless he is qualified to do so, he should not assume the duty.



DIFFERENTIAL DIAGNOSIS OF APPENDICITIS.

By J. M. T. FINNEY, M. D.,

Baltimore, U. S. A.

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THE subject that I have chosen for this paper is one that may appear somewhat trite and threadbare. At the same time, of all the vexed questions that present themselves to the surgeon, it is one of the most important and perplexing. In the typical case, of course, the diagnosis of appendicitis presents no difficulties to one who is at all familiar with the clinical picture. In the atypical cases, and, in the experience of the writer, they are not at all uncommon, few conditions present greater difficulties in arriving at a correct diagnosis.

Of course, it will be urged at once that an absolute diagnosis is not necessary, indeed not possible, in every case. To which proposition, as a working basis, most practical surgeons will readily assent, as it not infrequently happens that a positive diagnosis is impossible without an incision. But, as scientific men, it is manifestly our duty to make as nearly a correct diagnosis as may be, of every diseased condition that presents itself, in order to be in a position to give to each patient the best advice as to the treatment of his particular malady. To this end, a physician will not be doing his whole duty who does not exhaust every means at his command to obtain all the data relating to his patient's trouble, and who does not then, to the best of his ability, weigh carefully all the evidence, before committing himself to a definite opinion and course of action.

All this, of course, is elemental and in an audience such as this needs

hardly to be referred to. But unfortunately, one meets every now and then with incorrect and careless diagnoses, of the "snap" variety perhaps, which may lead to mortifying and even disastrous consequences. One cannot be too careful in studying the history and the clinical picture in each individual case, for in this way only can one hope to obtain results uniformly satisfactory alike to the patient and the doctor.

Where one is able to make a positive diagnosis, the decision as to the proper course of treatment is usually rendered more easy. Where a diagnosis is in doubt, the uncertainty in the mind of the medical attendant must always remain a disturbing factor. I want to emphasize, then, the necessity for the utmost care in the study and consideration of every individual case which presents acute symptoms referable to any portion of the abdomen.

In considering the differential diagnosis of appendicitis, one must consider practically every acute affection of the abdominal cavity, and a considerable number of those having their origin outside of it. Indeed a list of diseases which one must at times consider in making the diagnosis, and which almost any one of extended experience in these conditions could make up from his own personal observation, would include practically all of the acute and some of the chronic affections of the contained abdominal viscera, and a goodly number of those of the neighboring structures. Let me give you a list of the diseases which in my own personal experience

in hospital or private practice I have been called upon at some time to differentiate from appendicitis, and many of which, I must confess, I have mistaken it for, or the reverse.

This list includes: Tubercular peritonitis, gonorrhœal peritonitis, streptococcus peritonitis, pneumococcus peritonitis, perforation of ulcers of the stomach and of the large and small intestine, including typhoid perforations, ileus of various sorts, intussusception, inflammation of Meckel's diverticulum, carcinoma of the cæcum, tuberculosis of the cæcum, actinomycosis, fæcal impaction, intestinal parasites, acute pancreatitis, ovarian cyst with twisted pedicle, extrauterine pregnancy, salpyngitis, suppurating retro-peritoneal lymph glands.

Various affections of the kidney, floating kidney, infected cystic kidney, renal abscess, renal and ureteral calculi, perinephritic abscess, aneurysm of the right renal artery.

Affections of the biliary tract, gallstones, acute cholecystitis, recurring attacks of jaundice, liver abscess, psoas abscess, retention of urine.

Of extra-abdominal origin:—the infectious diseases, (typhoid fever, grippe, pneumonia, diaphragmatic pleurisy, tubercular or otherwise, measles, rheumatism, tonsillitis) acute osteomyelitis of the femur, osteomyelitis of the right ileum, inguinal adenitis, epididymitis in undescended testicle, angio-neurotic œdema, accidents, hysterical forms, the early stages of tabes dorsalis.

This is not a complete list of all possible conditions that have been or may be mistaken for appendicitis, but it is long enough to indicate how many pitfalls may at times beset the pathway of the unwary practitioner to a correct diagnosis. In many cases,

of course, one has to consider but one or two of the affections mentioned, but in some of the rarer instances where the clinical picture is a complex one, it is simply impossible in the present state of knowledge, without the aid of an incision, to differentiate between several. In such cases where the symptoms are at all urgent, to delay operation until an absolute diagnosis has been made, is often little short of homicide.

I wish to emphasize this point in passing, namely, that there are times, rare perhaps, and thanks to our more exact methods, all the time becoming rarer, when it is absolutely necessary to make an incision in order to establish a diagnosis. At the same time, I would insist upon the corresponding fact, that recourse should be had to the exploratory operation only after all other diagnostic means have failed. Unnecessary operations for whatever purpose, are to be decried as not only harmful, but a reproach to surgery.

A safe rule to follow, then, in the treatment of these cases, is, where one has reason to suspect the possibility of the existence of appendicitis, with the symptoms progressively increasing in severity, operate for a diagnosis. By so doing, one will occasionally find instead of an inflamed appendix, some other pathological process which demands operative relief with equal urgency, and will thus be the means, it may be, of saving valuable lives which might otherwise have been sacrificed by delay.

As diagnostic aids to the physician, special emphasis is to be laid upon a careful history of the case, paying particular attention to the existence of past attacks of a similar nature, and a thorough routine examination of the whole patient, not confining one's observation solely to

the region affected. If it involves a surgical operation, accept no ready made diagnosis, however likely, from any man, however eminent. Examine carefully for yourself. Responsibility for the diagnosis is inseparably bound up with that which goes with the operation.

Special tests such as are applied to the blood, urine, faeces, etc., should always be applied where practicable. Then a careful judicial consideration of all the data at hand should be one's invariable routine practice. It is just here that that sound judgment and clear insight so conspicuous in good clinicians, and so essential to success in a surgeon, are urgently demanded.

Upon reading over the list of diseases just enumerated, it would appear to be impossible for any one but the veriest tyro in diagnosis to mistake many of them for appendicitis. But strange as it may seem, a large proportion of the mistakes which have come to my notice, and some of the most striking ones, were made by excellent clinicians, men of wide experience and well recognized ability. I could relate instances illustrating all of these conditions but time will permit of but a few, and only abstracts from these.

Some time ago, I was called into the country in a neighboring state to see a young girl of fifteen years who had been complaining for three days of severe abdominal pain located primarily about the umbilicus, and later in the right iliac region. Her temperature and pulse were both elevated, there was marked tenderness and slight muscle spasm over the right rectus, in its lower third. No tumour. The attack had begun with vomiting and constipation. No blood count was made. The attack bore no relation to menstruation. No

history of previous attacks. In other respects the examination was negative. The clinical picture was not perfectly characteristic, still, since the symptoms were becoming progressively worse, and since the patient lived a day's journey in the country, I felt it would be safer to operate than to leave her in uncertainty.

A comparatively normal appendix was found, somewhat swollen and thickened, just as one finds it in acute rheumatism or after the grippe; nothing else. The next day, the patient was covered with a profuse rash of measles which ran a typical course, and she made an uneventful recovery.

One of the earliest cases of persisting faecal fistula following spontaneous rupture of a supposed appendicular abscess that I have operated upon, proved upon excision of the fistulous tract to be a Meckel's diverticulum. This case had been diagnosed by the attending physician as an appendicular abscess, which diagnosis was accepted after the patient had reached the hospital. Operation, however, revealed the true condition. The history of the trouble differed in no essential from that of the ordinary abscess of appendicular origin.

Three times I have operated upon appendicular abscess due to actinomycosis. The first case I did not recognize. Profiting by my experience in this instance, the second and third were properly diagnosed beforehand. The distinguishing features of these three cases were the marked and extended induration in the abdominal wall about the abscess, together with the length of time required in its development, and the lack of any special tenderness on palpation. In none of the cases had the abscess ruptured. After rupture occurs, the diagnosis is, of course,

rendered easy by the presence, in the discharges, of the characteristic fungus.

In elderly persons, carcinoma of the cæcum has always to be reckoned with. I was called in consultation upon one occasion to see a lady of sixty years, who gave the history of having had an attack of acute abdominal pain associated with nausea, vomiting, elevation of temperature and pulse rate, following upon some ill-defined symptoms of indigestion. When I saw her, she had a well-marked mass in the right iliac region, red, tender, œdematous,—clearly an abscess supposedly of appendicular origin. On making an incision, about two ounces of pus were evacuated. This led down to a cancerous mass involving the ileocæcal valve. The abscess was evidently secondary to an extension of the infection from the cancerous mass. The appendix was only incidentally concerned.

Upon another occasion, I was called to see a middle-aged man who presented symptoms very like those just referred to, except that they were not so pronounced. There was present a firm, slightly movable, but not very tender mass in the right lower quadrant. The diagnosis lay between cancer of the cæcum and appendicitis. Incision revealed the former. The mass was resected and a lateral entero-anastomosis carried out. The patient is alive and well to-day after seven years.

Not long since, the brother of a personal friend of mine from Tennessee, consulted me with the history of recurring pain and discomfort in the right iliac region; nothing more definite than this. He never was quite free from tenderness over this area, but, except during the exacerbations, he was able to attend to his duties. Examination showed a definite re-

sistance about McBurney's point, with an indefinite mass about the size of one's thumb, rather deeply seated. Otherwise, the examination was negative. The diagnosis lay between a chronic appendicitis and a localized tuberculous process. Since there was no tuberculous history in the family, nor any other manifestation of it elsewhere, the latter alternative was not seriously considered. The operation, however, showed extensive tuberculosis about the ileo-cæcal valve.

Another case very similar to this has recently been under my care, in which the diagnosis lay between tuberculosis, cancer and chronic appendicitis. The operation showed the first mentioned to be the cause of his trouble, and since incision was found impossible, owing to the extent of the trouble and the dense adhesions, an entero-anastomosis around the obstruction was performed.

Among the rarer affections with which appendicitis may be confused is acute pancreatitis. I have been called in consultation in two instances in which this condition was present, and on both occasions, from the character and location of the pain and the history of the trouble, the possibility of appendicitis was suspected.

This condition, as a rule, is rather more apt to suggest acute cholecystitis or intestinal obstruction, but in my cases, the history of recurrent attacks, absence of jaundice, character and location of pain, suggested strongly the possibility of appendicitis.

Perhaps the most characteristic sign of acute inflammation of the pancreas is the very great prostration usually early so marked and out of all proportion to the other symptoms. It was this feature alone which enabled us to recognize the true condition in our second case.

Some years ago, I was called in consultation by a professor of obstetrics in one of the numerous medical schools in Baltimore, to see a young woman whom he had just examined in consultation with her own examining physician and who, he thought, was suffering from fulminating appendicitis. I had the advantage of seeing the patient some hours later, when the clinical picture had materially changed. It was possible at that time, on account of the pallor and air hunger so characteristic of severe hæmorrhage, to differentiate sharply between the two conditions, and to the great chagrin of the professor of obstetrics, we made a diagnosis of ruptured tubal pregnancy, which was confirmed by operation.

Not long afterwards, I was hurriedly called by one of the best practitioners in Baltimore to operate upon what was supposed to be another fulminating case of appendicitis. This proved also to be a case of ruptured tubal pregnancy.

In three other instances in my experience, five in all, has the same condition existed with the diagnosis of appendicitis. Fortunately, the true condition was recognized in every instance before operation, chiefly by the evidence of hæmorrhage above mentioned. The symptom-complex of the typical case in these two affections can readily be recognized if carefully studied, but the atypical cases not infrequently resemble one another so closely as to render an accurate diagnosis at times well nigh impossible.

The influence of age upon the character and severity of an attack of appendicitis is very striking. My attention was first called to this some years ago, and recently quite a voluminous literature has appeared emphasizing this fact. As a rule, the

younger the child, the more acute the attack, and the earlier the development of abscess formation and peritonitis, and the greater the difficulty in diagnosis. The older the patient, the more apt is the condition to be a more or less sub-acute or a chronic one. One of the most prominent features of the onset of an attack of appendicitis in young children is its insidiousness. It may and generally does simulate some other condition. The attention may be attracted entirely away from the abdominal cavity, not infrequently to the pleural cavity, as pneumonia is perhaps one of the commonest conditions for which it is mistaken in early childhood. The attacks are frequently not ushered in by any well defined onset, as in an adult. The child is evidently ill, but can give no connected account of its sickness. It may complain of some one special symptom that directs the physician's attention to some remote part. I very well remember a young child brought by its mother into the Massachusetts General Hospital when I was resident there, complaining of nothing but retention of urine. It was only while seeking for an adequate cause for the retention that an acute appendicitis was discovered.

Abdominal tenderness, early as a rule so pronounced in adults, is in children not infrequently wanting, or attracts little attention. Indeed, recently I have seen two children suffering from acute gangrenous appendicitis who could be comforted only by rather vigorous massage of the abdomen, and for which reason both cases had not been diagnosed early by competent medical attendants.

It must not be forgotten that very young children may be the victims of this trouble. One of the children just referred to was only thirteen

months of age, and much younger cases have been reported.

Kirmisson and Guambellot, in an interesting article * report twenty-six cases of appendicitis in nursing infants. Collected according to age, they are divided as follows:

Nine in the first year, seventeen in the second year.

Taken as a whole, these twenty-six cases have resulted in nineteen deaths and seven recoveries.

If we look at the results in relation to the age, we find that the nine cases in the first year all terminated fatally. Those occurring in the second year, have resulted in seven recoveries and ten deaths. It is also noted that all of the cases which recovered, occurred after eighteen months.

Now if we look at the results obtained after surgical interference, we see that of nineteen cases in which operation was done, there were seven recoveries and twelve deaths. From the preceding facts they draw the following conclusions:

(1.) Appendicitis in the first two years of life is not so rare as one would think.

(2.) Its evolution is rapid, its prognosis extremely grave.

(3.) The only cases of recovery have been, up to the present, those operated upon early, the indications for immediate operation being evident.

(4.) That which renders the determination to operate difficult is the difficulty of the diagnosis.

The appendix seems to rupture relatively much earlier in children than in adults. This has been supposed to be due to the thinner submucous coat of the appendix, which is less resistant to bacterial invasion and tension than the adult structure. General peritonitis, therefore, tends to develop earlier than in the adult,

and, in my experience, is less well borne in the young child than in persons of more advanced years.

A striking commentary upon the difficulty of diagnosing appendicitis in young children is found in my own experience. I have operated upon but two instances of appendicitis in children under the age of ten years in which the appendix was found to be unruptured. In one of these, the child had had a slight preceding attack, and thus the attending physician was placed on his guard for another. The other patient showed so little pathological change in his appendix that had I not seen the same thing happen so many times in children, I should have been inclined to doubt whether he really had appendicitis at all, although his pain, tenderness and muscle spasm were referred to the right iliac region, and his temperature and pulse were steadily advancing for thirty-six hours up to the time of operation. All symptoms subsided immediately following the removal of the appendix.

The clinical picture of appendicitis is, unfortunately, not always constant or characteristic. There is no pathognomonic sign. Much depends upon the stage of the disease in which the patient is first observed, the different periods of the disease being characterized by different sets of symptoms, some or all of which may be wanting. At other times, symptoms entirely different from those usually observed may be present and unduly prominent, diverting the attention of the physician from the real condition.

The location and character of the pain, the intensity of the inflammation, the position of the appendix and its anatomical relation to the neighboring structures within the abdominal cavity, the mental attitude of the

* *L'Appendicitis chez le Nourisson*, Kirmisson et Guambellot, *Revue de Chir.*, vol. XXXIV, 1906, p. 144.

patient, and to a certain extent that of the examining physician as well, are some of the more important factors that may greatly help or hinder a correct diagnosis. Some phenomena observed in the course of the disease may be at times deceptive and difficult properly to interpret. For instance, the sudden subsidence of pain after twenty-four or forty-eight hours. This may or may not be a favourable sign, depending upon accompanying conditions. If associated with a corresponding drop in the pulse rate and a slight decrease in the leucocytes, then continued improvement may be confidently expected. But if, on the other hand, an increase in the pulse rate and a sudden drop in the temperature possibly to subnormal, together with a sharp decrease in the leucocytes, and an increasing abdominal distension are present, the perforation of a gangrenous appendix with peritoneal extravasation has almost surely taken place. There are various intermediate stages between these two pictures which defy the skill of the attending surgeon to always correctly interpret. It is just here where close observation, wide experience, and sound judgment in the proper interpretation of symptoms avail so much.

Inflammatory diseases of the Falloppian tubes, whether tubercular or gonorrhoeal in origin, when occurring on the right side are very commonly mistaken for appendicitis. Particularly is this the case with the acute gonorrhoeal affections. I have recently seen three very marked instances of this condition occurring in young girls, in none of whom was there reason beforehand to suspect the existence of any infection. The symptoms were identical with those of appendicitis, the trouble being confined almost exclusively to the right

side. In the absence of any history of possible infection, the existence of menstrual disturbances and the situation of the pain and tenderness at their onset a little lower down in the pelvis than is usually the case in appendicitis, are the only differences that I have observed in the abdominal picture of these two conditions.

Ovarian cyst with a twisted pedicle is another condition which one is occasionally called upon to differentiate from appendicitis. Here again even with a pelvic examination, where the cyst is a small one, it is sometimes impossible to distinguish the one from the other. Twice I have made the mistake. In three instances, I have been able to recognize the true condition. In addition to the possibility of recognizing the tumour by pelvic examination, the rather low temperature that one would expect to find with the rest of the picture, and the differential count, are the only points of difference that I have noticed.

Various affections of the kidney and ureter not infrequently simulate very closely the picture of appendicitis. Upon one occasion, a patient was sent to the Johns Hopkins hospital by a physician as an emergency, with a supposed appendicular abscess. I was very busy in the operating room at the time and made only a hurried and superficial examination. The history given by the physician and patient was identical with that usually given in appendicitis. The patient had a tender swelling in the right iliac region, apparently a typical appendicular abscess. The physician reported that the urine had been examined some weeks before, and was all right. A specimen of urine was not obtained before operation, which was performed immediately. Upon opening the abdomen, a mis-

placed suppurating cystic kidney was found. The examination of the urine subsequently showed large quantities of albumen and pus. An instance of mistaken diagnosis of the ready-made variety, due to a hurried and insufficient examination. Perinephritic abscess is a notoriously obscure affection, and when occurring on the right side, is extremely difficult at times to recognize. Some years ago I had under observation a case of this sort which was seen also a number of times by Dr. Osler. The symptoms, which consisted of pain and tenderness in the right lower quadrant of the abdomen extending around somewhat into the flank, slight temperature and leucocytosis, were hardly enough to justify immediate operation. No improvement occurring, however, we later made an exploratory incision. The appendix was found normal. Extending our search up into the region of the kidney, a very small perinephritic abscess was found and drained.

Affections of the biliary tract simulate at times very closely appendicitis. One of the most striking instances of this kind in which a wrong diagnosis was made, has recently been under my care in the Johns Hopkins hospital. A patient from South Carolina consulted me with a history of having had repeated attacks of abdominal pain associated with slight elevation of temperature, indigestion, constipation, and always accompanying these attacks had been noticed a slight jaundice. After a careful study of the case, we made a diagnosis of gallstones. Upon operating, we found to our surprise a perfectly normal biliary tract. After further search, we found a very adherent inflamed appendix which did not seem to have any connection with the biliary tract. This was removed and the abdomen

closed. The patient has since been completely relieved of his attacks of jaundice.

A similar case was observed two years ago in the person of one of the surgical internes in the Johns Hopkins hospital. Since the removal of an inflamed appendix by Dr. Halsted, there has been no recurrence of the attacks of jaundice.

Everyone with any experience in abdominal surgery, has met with cases of acute cholecystitis and liver abscess, the differentiation of which from appendicitis has taxed to the utmost his diagnostic acumen.

Before leaving the abdominal affections, I want to call attention to one of the rarer but one of the most interesting affections which is sometimes mistaken for appendicitis, namely, that little-understood affection to which the name of "angio-neurotic oedema" has been given by Quincke. Since he first described this condition in 1882, an increasing number of cases have been reported in the literature. Dr. Osler has called especial attention to the condition in this country. One case has come under my own observation. My patient, the wife of a physician, was operated upon during the interval between attacks. The appendix at that time showed only slight abnormality. Her attacks, which had been frequent were at times quite severe and accompanied by all the phenomena associated with typical attacks of appendicitis. It was only after repeated recurrences of the trouble subsequent to the removal of the appendix, and an investigation of the family history, that a diagnosis of the true condition was made.

There had been angio-neurotic oedema in the family of this patient for four generations that are positive, and there is an indefinite history of

its having extended farther back. There are known to have been at least thirty-two members of this family afflicted with the trouble. A swelling may come on in any part of the body, and very often it is abdominal in character. Two cases have died of œdema of the glottis. When the attack is abdominal, there is decided prostration for six or eight hours preceding it. Pain in the abdomen is very often in the region of the appendix, at times in the region of the gall-bladder, at times referred to the stomach. Intestinal patterns are soon to be made out, and one can grasp the loops in one's hand, so hard do they become. The lumen of the bowel appears to become entirely obliterated and this gives rise to intense vomiting, which may persist for from twelve to twenty-four hours. Nothing can be taken by mouth and retained. There is a good deal of tenderness on palpation over the stomach. All the secretions of the body are greatly diminished.

Perhaps more interesting still are the extra-abdominal affections with which appendicitis may be confused. Of the infectious diseases, typhoid fever, pneumonia, grippe, diaphragmatic pleurisy, measles, rheumatism and tonsillitis are those most commonly at fault. Dr. L. P. Hamburger and I, in a paper entitled "The Relation of Appendicitis to Infectious Diseases" (American Medicine, 1901,) called attention several years ago to some interesting cases which we had observed together. These were associated more particularly with rheumatism, but others of the acute infectious diseases may also, not infrequently, be mistaken for it. This is notoriously the case with those interesting forms of grippe with which during the recent epidemics almost everyone has become

familiar, in which the abdominal symptoms assume undue proportions.

Typhoid fever at its beginning and later on, when symptoms of intestinal perforation are present, is at times extremely difficult to differentiate. Some years ago a physician and personal friend of mine came to the Johns Hopkins hospital from Charleston, South Carolina, giving the history of recurring attacks of colicky pain in the abdomen during the past two years, and which were supposed to be appendicitis. For the three weeks preceding his admission, he had not been feeling well, and had had slight abdominal pain. For four or five days constipation had been pronounced. The abdominal pain which had been general, two days before became localized at McBurney's point. No distension; leucocytes twenty thousand; temperature subnormal; pulse ninety. The picture suggested somewhat a typhoid; but as the Widal was negative, and since there was the history of an undoubted severe attack some years previously, typhoid was excluded, and the diagnosis of a catarrhal appendicitis was made.

Operation showed a comparatively normal appendix. There were a number of old adhesions, the scars of previous attacks, but no present inflammation. Nothing else was made out. The appendix was removed and the abdomen closed. The patient made a good recovery from the operation, but went on with a typical attack of typhoid fever to which he eventually succumbed about two weeks later, from repeated intestinal hæmorrhages.

Pneumonia, particularly in children, is extremely difficult at times to differentiate from this condition. Upon six different occasions I have

been called to operate for appendicitis upon children who were suffering from pneumonia. Fortunately in all the cases, the true condition was recognized beforehand. I was present however, a few months ago, and gave assent to an operation performed by one of my colleagues upon a child who presented a clinical picture which so closely simulated appendicitis that we were unable to differentiate it. A normal appendix was found, and subsequently a pneumonia of the right lower lobe developed.

Upon one occasion, I was called to the country to see a young man. The symptoms, which were quite pronounced, were referred entirely to the lower right side of the abdomen, and were those which I took to be due to a typical appendicitis. Had I had with me the necessary implements, I should have unhesitatingly operated that evening. Fortunately for the patient, however, I had not. By the next morning, the picture had changed so materially, that the abdominal cavity was no longer implicated, and the trouble was clearly located in the pleura. The patient subsequently entered the Johns Hopkins hospital with an acute military tuberculosis, from which he died.

There have been observed in children especially, following pneumonia, a number of cases in which abdominal symptoms supervene soon after the pneumonia has begun to subside. Two such cases have come under my observation, both of which were operated upon, and in both of which a general pneumococcus peritonitis was found, the onset of which simulated very closely a beginning appendicitis. Both cases terminated fatally. The lesson to be learned from these observations is the necessity of being on one's guard for the possible development, particularly in

children, of peritoneal complications subsequent to pneumonia, due to the invasion of that cavity by the pneumococcus. So also following acute tonsillitis, one meets now and then with a patient presenting acute abdominal symptoms, very strongly suggestive of appendicitis. I was called very recently by an excellent practitioner of Baltimore, to see a child suffering from severe abdominal symptoms, which he thought due to fulminating appendicitis. When I saw the child, he was lying in bed with his knees drawn up, anxious expression, complaining of intense generalized abdominal pain, a rapid pulse and high temperature. Examination of the abdomen showed rather tense abdominal walls, no muscle spasm anywhere, but slight general tenderness over the whole abdomen. There had been nausea and vomiting with constipation. Upon examining the child's throat, we found a very pronounced follicular tonsillitis which ran the usual course, and child made a good recovery without operation.

I have recently seen in consultation with one of my colleagues a fatal case of streptococcus peritonitis following tonsillitis. In this case, as a forlorn hope, an incision was made thinking that possibly an appendicitis might be found, but the appendix differed in no way from the rest of the generally inflamed peritoneum. A pure culture of streptococcus pyogenes was recovered from the peritoneal cavity.

Inguinal adenitis has not infrequently been mistaken for appendicitis. Some time ago I was called by one of the best general practitioners in Baltimore to see a young man with acute appendicitis. On paper he had all the cardinal symptoms, even to a tumour in the right iliac fossa. The attending physician, however, had

failed to observe that the right side of the scrotum was empty, and that the patient had a profuse purulent discharge from the urethra, an instance of epididymitis in an undescended testicle.

One of the most interesting cases from a diagnostic standpoint which I have ever met with, was in the person of a youth, seventeen years of age, who had been out chestnutting. Upon returning home, after eating a great many chestnuts, he was seized with a pain in the lower part of the abdomen, in the right iliac region. He had been perfectly well up to that time. The pain was intense. I was called the next day by his physician to see him. The diagnosis at that time was acute appendicitis. I found the boy in bed with his right leg drawn up, he looked sick, and complained of pain referred to the right iliac fossa. His temperature and pulse were both elevated. There had been nausea and vomiting. Examination showed no muscle spasm, but slight tenderness over the lower part of the abdomen on both sides. The tenderness did not seem to be more pronounced on one side than on the other. Attempts to straighten the leg caused great pain in the groin. Examination of this region and the hip joint showed nothing. There had been slight pain on urination. He had no chill. He also had a cough, which began about the time of the pain, and which bothered him considerably. The expectoration was considerable, whitish not rusty. Examination of the chest, except for a few coarse rales, was negative. I advised going to the hospital at once for observation, as I was not positive in my own mind as to the diagnosis. This was declined until the next day when the patient entered the Johns Hopkins hospital and was seen by

several members of the staff. By this time, the sputum had become a little blood streaked, and his cough caused him a good deal of pain in the lower right side of the abdomen. Examination of the chest showed nothing more than a slight bronchitis. He had herpes on the lips, the abdomen was fairly soft and permitted deep palpation everywhere, except low down over the symphysis, and on the right side above Poupart's ligament.

Pressure here gave pain, and there was some muscle spasm. The right thigh was flexed and could be straightened only with difficulty, and this caused the patient pain. No tenderness in the hip joint. Examination of the back was negative. The leucocytes at this time were 19,500, temperature 104° , pulse 120. It was then learned that the patient had a sister at home sick with typhoid fever. The diagnosis was then probably typhoid fever, although the Widal was negative. Two days after entering the hospital, when seen by Dr. Osler, he dictated the following note, "Suspicious spots in right flank suggesting rose spots, definite dicrotism of pulse, some pining rales over right base, some impairment in left axilla, there is an indefinite mass just above the symphysis pubis, palpable, tender." The patient was observed for two days longer, when for the first time a swelling was noticed in the upper part of the thigh. Synchronous with this observation, his abdominal pain and tenderness markedly improved. This swelling was promptly incised and several ounces of pus were evacuated. The pus was found to lie beneath the periosteum of the upper end of the femur, with a roughened shaft below. The abscess extended just up to Poupart's ligament and to the obturator fora-

men, but not into the pelvis. The patient improved considerably after the evacuation of the pus, and was apparently on the road to recovery, when he developed a right pneumothorax to which he shortly succumbed.

To summarize this case, it was diagnosed at first by a competent physician as appendicitis. When I saw the patient, it suggested this strongly, but I could make no positive diagnosis. He was admitted to the Johns Hopkins hospital for observation. There a diagnosis of probable typhoid was made by Dr. Osler, which later was revised, when pus manifested itself in the head of the femur.

A few weeks ago I was called by a physician to see his mother, who had slipped on the ice two days previously and received a hard fall, striking on her right side. She was a large, fleshy woman and had been considerably bruised and jarred by the fall, but was able to walk home. The next day she complained considerably of soreness over her whole right side, but particularly in the abdomen, which was supposed to be from a wrench, the result of the fall. That night, however, it was observed, that she had a slight temperature. The next day her soreness and pain continued and ecchymoses appeared at various points where she had evidently bruised herself in falling. She vomited at this time and still complained severely of the abdominal pain. The doctor then for the first time examined the abdomen, and noticed a tenderness and rigidity over the right iliac region. I was called at this juncture to see her, and found a perforated appendix with a beginning abscess. This was confirmed by immediate operation. The symptoms in this case had been

completely obscured by those resulting from the fall.

I fear I have already overstepped my time, and overtaxed your patience, with this too long recital of cases, and so will refrain from further wearying you with them.

Although it has been known for a long time that acute pyogenic infections are generally associated with hyperleucocytosis, Curschman (*Munchener medizinische Wochenschrift*, 1901, pp. 1907 and 1962) was the first to emphasize this fact in connection with inflammatory disease of the appendix and to point out its possible diagnostic importance. He showed that leucocytosis of 22,000 is strongly suggestive of abscess, and that a rise even though temporary, to 25,000, indicates the existence of suppuration. Curschman's studies attracted much attention, and the following years brought out many papers in which the relation of leucocytosis to appendicular disease was discussed. His results were largely confirmed, but observations were also not wanting, which tended to show that in the diagnosis of appendicitis, the blood count did not always indicate the actual status, and could scarcely be regarded as a trustworthy guide to operation.

In the controversy which arose between the laboratory men and the surgeons, and which was not always couched in the language of courtesy and diplomacy, the fact was brought out, on the one hand, that a high leucocyte count does not necessarily indicate the existence of suppuration, and, on the other, that general peritonitis may exist even though the leucocytes are approximately normal in number. As a result, some surgeons place no value whatever upon the leucocyte count in the diagnosis of appendicitis, and tend to discredit

so called laboratory methods of diagnosis altogether. Others have been less radical. While realizing that there are limitations to the usefulness of the blood count, they are nevertheless willing to assign to it a place as a useful method in their diagnostic armamentarium.

In my own service, the leucocyte count is now made as a matter of routine in every case of clinically suspected appendicitis, and unquestionably furnishes information of much value. Formerly, only the absolute count was considered, but of late we have systematically made the differential count, which my colleague, Dr. Charles E. Simon, has for a number of years insisted upon. He lays special stress, in the diagnosis of acute pyogenic infections, upon the increase of the neutrophiles beyond seventy-five per cent., especially when associated with a decrease, below one per cent., or absence, of the eosinophiles. (Clinical Diagnosis and International Clinics, 16th series, vol. 1, p. 147). This correlation, he speaks of as the septic factor. He lays great stress upon the presence of this septic factor in the diagnosis of acute inflammatory disease of the appendix. He regards the information obtained from the differential count as much more important than that furnished by the absolute count alone, and emphasizes the point that for the purposes of the general practitioner, the differential count alone is sufficient for routine work, and less apt to lead astray than the absolute count.

The technique is simple. A couple of glass slides, a little Jenner's stain and a microscope of medium amplification, are all that is necessary. The time required for the full examination need not exceed ten to fifteen minutes. As a result of our joint

studies in this direction, we have now come to the following conclusions, given as premises clinical symptoms suggestive of acute appendicitis:

(1.) With a normal differential count, acute inflammatory disease of the appendix can be definitely excluded.

(2.) An absolute increase of the leucocytes beyond 15,000, the blood simultaneously showing the septic factor, may be regarded as evidence that an acute inflammatory process exists, warranting surgical intervention.

(3.) A rising leucocytosis with septic factor, *cæteris paribus*, indicates that the inflammatory process is progressive.

(4.) As the leucocytes exceed the 15,000 mark, a purulent condition will be encountered, the more likely the higher the count, and the higher the percentage of neutrophiles.

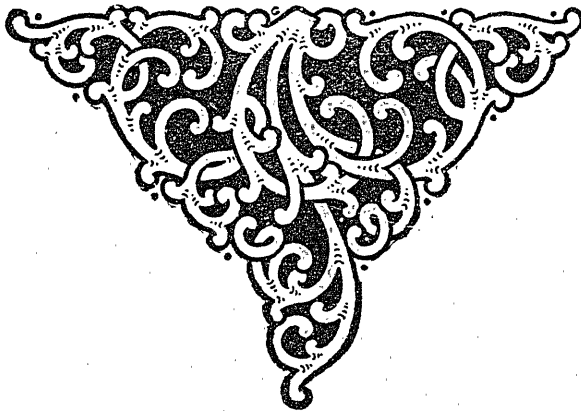
It is noteworthy, however, that in appendicular disease, the absolute count rarely exceeds 30,000, and that in the perforative and gangrenous cases, even values above 25,000 are relatively uncommon. In the vast majority of such cases, the figures range between 15,000 and 25,000. Coincidentally, the neutrophiles are increased to eighty-five per cent. or more. The increase of the latter is sometimes most remarkable. In one fatal case observed by Simon, ninety-nine per cent. were counted. This, however, is rare and in the most active suppurative cases it is uncommon to find figures exceeding ninety-five per cent. The eosinophiles are at the same time absent or present in such small numbers that the relative proportion is well below five-tenths of one per cent.

(5.) While a well-marked and progressive leucocytosis may thus be regarded as indicating the existence

of an active and progressive inflammatory process, and while errors of diagnosis in this direction are hardly likely to occur, a falling leucocytosis should always be viewed with suspicion and invariably controlled by the differential count. A disappearance of the inflammatory process should only be inferred, if, with the decline of the absolute count, there is a return of the neutrophiles to normal values, and, if at the same time, the eosinophiles reappear. This combination of events may indeed be viewed as a favourable symptom. If, however, associated with a decline in the total number of the leucocytes to maximal normal or lower values, the neutrophiles remain increased, and the eosinophiles much diminished or absent, it may be in-

ferred that the inflammatory process still persists and that most likely perforation has occurred and general peritonitis has developed.

In this very class of cases, the signal value of the differential count becomes apparent. Nothing would be more erroneous than to infer that because the total count has fallen, the patient is recovering. The differential count in such cases will tell the true story. In cases, therefore, in which the absolute count shows a tendency to return to normal values, differential counts should invariably be made and carefully studied. To repeat once more, a drop in the total number, associated with a persistently high neutrophile count and sub-normal eosinophile values, means not recovery, but added danger.



A CASE OF HUNTINGTON'S CHOREA.

By G. A. McIntosh, M.D.,

Nova Scotia Hospital, Dartmouth, N. S.

IT will be remembered that Huntington's, or chronic progressive chorea, differs from the ordinary or Sydenham type in that it is a disease beginning in adult life, characterized by irregular muscular movements and mental phenomena usually terminating in dementia. Of the aetiological factors, heredity appears most important.

Family History:—The family history of the patient is very imperfectly provided. Most of the relatives reside in parts unknown, and those who do not are ignorant of the required facts or unwilling to give the desired information. However, we were able to determine that at least three of his ancestors (father, uncle and aunt) were affected with some malady, which, to all appearances, was the same as that about to be described. On account of their peculiar actions these persons were known as "jumpers" in the community where they lived. The patient has three children, but none have reached the age when this disease shows itself.

Personal History:—The patient, who is now 45 years old, is a Nova Scotian by birth. During infantile and childhood life, his growth and development were regular and normal. He is said not to have had fits, convulsions, chorea, or nervous manifestations of any kind during early life. At school he was not bright. Had diphtheria when seventeen years old. In occupation he has been a labourer. Has used both tobacco and alcohol to considerable extent. He married, and has three children, but his wife left him about twelve years ago and married again.

Present Illness.—It is difficult to define the onset of the present disease. Some date it from the departure of his wife twelve years ago; other place it more recently, at about half that time. At any rate it may be said that the patient has during the last five or six years manifested a gradual change in disposition. The mental symptoms were apparently the first to make their appearance, and consisted at first in a tendency towards seclusiveness, and indifference to the affairs of life, and later on quite marked irritability. For the last three or four years he has lived entirely by himself, doing little, if any, work. During much of this time he would remain in bed nearly all day, and showed a tendency to move about at night. When questioned why he behaved thus, he would become irritable, and even passionate. Shortly before his commitment to the hospital he became profane, careless about his appearance, and even attempted violence to his sister, causing her to fear for safety. About the same time delusions played a part. He suffered from the idea that the water he used contained poison. He also spoke of being interested in some imaginary financial enterprise.

We do not know the time, nature, or mode, of onset of the physical symptoms.

Physical Examination:—He is a man of about average size, weighing about 140 lbs., and quite well proportioned. When in health he possessed more than average physical power, but now his general appearance and conduct are such as to at first almost excite ridicule. The forehead is low.

and retreating. Excepting that the ears are small and not particularly well formed, other stigmata of degeneracy are absent. The vision of the right eye is much impaired, owing to the presence of both a cataract and corneal ulcer. When at rest the face presents a dull, stolid appearance. From the eyes downward it is quite smooth and free from wrinkles. The naso-labial fold being absent, it is quite expressionless. The frontalis muscle is generally contracted, and when the mouth is open and the head held to one side, as is frequently the case, gives to the patient a questioning, yet stupid expression. His facial appearance is not always uniform; occasionally the muscles of expression involuntarily act, causing a peculiar grinning smile. Recently a new feature has arisen; the muscles of mastication being no longer fully under control, at times cause a motion of the jaws and tongue, quite similar to that seen in ruminating animals when chewing the cud. When asked to protrude the tongue he can generally do so, but it is immediately drawn back again with a jerk. This involuntary muscular activity constitutes an important feature in his condition, involving as it does many of the muscles of the body. Even when sitting at rest, and without any apparent cause, a whole group of muscles may be thrown into action, causing a portion of the body to suddenly move some considerable distance. The head may be thrown backwards, forwards, or to one side, for the distance of a few inches. The arms and legs are similarly affected, only here the excursions through which they pass are greater and the movements not so frequent. Occasionally the entire body gives a sudden jerk. These movements cease during sleep, but on being aroused are renewed with increased activity for a time.

When in the standing position, apart from the grinning, grimacing expression of the face, he is almost constantly involuntarily changing his position, as if posing or endeavouring to strike an attitude. At times these actions have some resemblance to a beginner endeavouring to dance a stepdance, but the movements are not so rapid. When requested to check these motions he can do so for a time, but they soon begin again. When asked to place his finger on his nose, he proceeds by a series of zigzag irregular courses, but generally succeeds after some effort. The finer muscular movements, as buttoning his clothes or rolling up his sleeves, can scarcely be performed, while his handwriting is absolutely illegible, being nothing more than a series of irregular markings. When he attempts to take food, the same unsatisfactory routine is indulged in. He appears to go hunting about his face for the proper opening, and when he succeeds in placing the food in his mouth it is only with difficulty that it can be masticated and swallowed. When he walks he holds his hands out from his sides and advances in an irregular zigzag course, his body sways back and forth with a swaggering motion, and sometimes he almost entirely stops. His steps are generally long, but of unequal length. He lifts his foot rather high and brings the entire sole down with considerable force. His whole appearance when walking quite closely resembles that of a person under the influence of alcohol. His speech is thick, slurring, and sticky, it being at present very difficult to understand his limited conversation.

On his arrival, the knee jerk and bicipital reflexes were exaggerated; they are now almost normally active, while the plantar and abdominal, which were then active, are now near-

ly absent. The organic reflexes continue normal, while the left eye reacts to both light and accommodation. Sensations of pain and temperature remain unimpaired.

Psychological Examination—As already indicated, delusions were present some months ago, but have not been detected recently. Orientation is considerably at fault. Although in the hospital for months he still believes that he is in one of the country towns of the province, where he has come on business, and expects to return shortly. He also claims that his home is just a short distance away. Regarding time he has little idea, does not know the day of the week or month of the year. He is aware that it is months since he adopted his new surroundings, but is unable to gain any definite information about the place. Although in the same ward ever since his arrival, he does not know the names of any of his attendants or fellow patients. Memory is also at fault, he being unable to give even approximate dates for remote events, and that referring to recent occurrences shows even greater defect. The almost complete loss of a fair school education is well marked. There is decided lack of power of forming new ideas. Judgment and reasoning are impaired, and thought processes are slow. The emotional irritability, on account of which he was committed to the asylum, has not been conspicuous. On the other hand there is generally a feeling of wellbeing and contentment. He does not associate much with the other patients, but prefers to be alone. He has some insight into his own condition, but is not able to grasp its seriousness, and notwithstanding his deplorable state, considers himself nearly as good a man as ever.

This case presents the important features of the disease:

First:—Defective heredity.

Second:—Beginning of the disease in adult life.

Third:—The accompanying insanity.

Upon the defective heredity, unfortunately, it does not throw much light, but in one generation we know that three were effected, and from one of these our patient has sprung.

Recently Dr. Harry W. Miller, of Taunton, Mass., has reported a case of which the following is from his summary:

"We have from a choreic ancestry, twenty-seven descendants. In the first generation, three out of five were choreic, one had a psychosis, and the other is nervous. In the second generation, seven out of thirteen were choreic, five died in early infancy and one is supposed to be normal. In the third generation none have reached the age at which this form of chorea manifests itself, but seven out of the nine are neurotic."

Is this not a condition interesting both from a medical and a sociological aspect? It is one of the few examples of homeomorphic disease in which heredity plays an almost positive part. In it the ancestral effect is not a speculation. It is not a mere tendency or predisposition that is transmitted to the offspring, but in the vast majority of cases the actual disease itself. Following the laws of heredity all the descendants are not doomed to a similar fate. Some are segregated out, and their progeny become cleared from even a taint. But on the other hand there are those who although, perhaps, in their earlier years were valuable citizens, are certain to be overtaken later in life.

Cannot something be done to prevent such a disease gaining a firmer foothold in our midst?

Shall we attempt to check it by our individual efforts, or should we seek the aid of our legislators? At any rate, let us be fully aware of its actual presence, and whether by individual or collective forces, let us strive to drive back an enemy whose victory is so certain and whose devastation so loathsome. To the descendant who are to escape, there is the

constant dread of a subsequent invasion, while to the unfortunate victim there is a future of marked physical impairment, accompanied by mental deterioration, producing little other than a slowly decaying vegetative organism, which is devoid of the mental attributes that constitute human intelligence.



RECUMBENCY IN THE TREATMENT OF INFANTILE PARALYSIS.

By ADONIRAM B. JUDSON, M.D.

New York.

IN the ever-changing treatment of disease, the influence of environment is receiving unusual attention, as is seen in the management of tuberculosis of the joints. The influence of the lapse of time is also better understood. Medicines are given in small doses for very long periods, and the effects of time on the body are more clearly seen to influence the course of disease and the action of remedies.

In the treatment of infantile paralysis, I propose a method which relies exclusively on the influences of environment and the lapse of time. It is applicable only in the very early stage, before the case is likely to be seen by an orthopædic surgeon. As soon as the disease is recognized I would limit the patient to the recumbent position till there is no possibility of further recession of the paralysis. The period of spontaneous recession extends over several months. During this time the difficult task must be undertaken of keeping a child, well in every other way, off his feet at an age when he should be learning to walk. In some cases 18 months should be occupied in this way. The common belief that such a patient requires exercise, especially of the affected limbs, will give rise to criticism and objections. A simple argument will not prevail in the family circle, and the physician's word will hardly prevent the little patient from having many a romp. And when the case ends there will be differences of opinion. If some lameness results, it may be said that the

patient should have had more exercise, and if there is no disability at all, after the strict observance of recumbency, it may be said that there had been very little the matter with the child.

The argument is as follows. It will be recalled that the ill effects of joint disease are seen more commonly in the lower extremities than the upper, because tuberculous action is subject to resolution in the epiphyses of the shoulder, elbow and wrist, but often goes on to destruction of the articulating surface of the hip, knee and ankle. And when it is noted that the arms are free while the legs bear the weight of the body it is reasonably inferred that the joints of the lower extremities when affected, or even suspected, should be protected by either recumbency or appropriate apparatus. The conclusion is a plain proposition and needs no discussion or verification. It shares the simplicity of Jenner's argument when he traced the relation of cause and effect and prescribed vaccination. In another field, Finlay, walking with his eyes open, apprehended the relation of cause and effect and prescribed the sequestration of the mosquito.

The necessity of reforming the environment of the lower extremities having been derived from clinical observations of joint disease, can practical conclusions be drawn in a similar manner from observing the course of infantile paralysis? Disability from this disease is seen eight times as often in the lower, as in the upper ex-

tremities, and yet in the early stage the paralysis is found in all parts of the motor nervous system. The muscles of the recumbent patient are in very moderate use and in a position entirely favourable to spontaneous recession of the paralysis. The arms and hands retain this advantage when the patient is erect, but the impaired muscles in the legs and feet give way at once when they meet the resistance of the weight of the body. They rapidly become elongated and attenuated, and could not well be placed in an attitude more destructive of the possibility of restoration.

When prescribed recumbency shall give to all parts the same environment, recession of paralysis will be equally encouraged in the lower and upper limbs, the disproportion of 8 to 1 will disappear, and the sum of deformity from this disease will be materially reduced.

The value of the method is thus proved, but it is not readily demonstrated. When comparing methods

it is not easy to show that one is better than another. It may always be said that a case cited in behalf of a certain method may have been one that would have done well under any treatment. Tables of carefully recorded cases might lead to correct estimates, but studies of this kind are difficult and have not escaped criticism. Dr. Gaillard Thomas said with wit and wisdom that if there is anything more misleading than facts it is figures. Medicine and surgery are still outside of the realm of exact science. Therefore we welcome every logical and reasonable resource of prevention and treatment.

Passive motion, resistance exercises, electricity, massage, local applications and judicious medication should be continued. They cannot interfere with the treatment proposed, and their observance may make it easier persistently to maintain recumbency, the most important agent of all.

CORRESPONDENCE

A Correction by Dr. Chisholm.

Dear MR. EDITOR :

I very much regret the printer's error in the lines sent to Dr. F. H. Lunney, on the occasion of Dr. Bayard's seventieth anniversary. It should read:

Then to cheat the sleepless Charon
Of his freight across the stream
You have buckled on your armour
Fighting shy of pleasant dreams.

The illusion being of course classical, and founded on Lucian's Satires, where he describes Charon rowing the

souls of the departed across the river Styx. You must have copied from the *St. John Telegram*, whose staff evidently were not well versed in Grecian Mythology.

I may say that these verses are a slight modification of some written for a lecture before the students of the Halifax Medical College, on "The young graduate going out to practice," and were intended to depict the toil and trials to which he would be subjected.

Yours truly,

M. CHISHOLM.

CURRENT MEDICAL LITERATURE.

INFLAMMATION: An Introduction to the Study of Pathology, by J. George Adami, M. A., Ph. D., F. R. S., etc., Professor of Pathology, McGill University, Montreal. PUBLISHED BY THE MACMILLAN COMPANY OF CANADA, LIMITED, 27 Richmond St., West, Toronto.

This is a revised and considerably extended reproduction of the article by Professor Adami, which appeared in Clifford Allbutt's System, and which aroused such great interest upon its publication. It will be remembered that some of the views set forth appeared rather revolutionary and led to considerable discussion. At that time some critics offered strong objection to Dr. Adami's teaching, but to-day few dispute the soundness of his views. The accomplished author has thoroughly revised the original paper, has made numerous additions to it, and now presents a book of 240 delightfully written pages which is essential to everyone who desires to keep abreast with the pathology of the day. It will be noted that the work is published by the MacMillan Company, of Canada.

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INTERNATIONAL CLINICS: A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Volume II, Seventeenth Series, 1907. PUBLISHED BY J. B. LIPPINCOTT COMPANY, PHILADELPHIA; Canadian Representative, Charles Roberts, Montreal.

Our many eulogistic opinions on former volumes can be well applied to the latest volume. "The Vaccine Treatment of Infectious Diseases," by R. J. Cole, M. D., of Johns Hopkins Hospital, is worthy of perusal. Results obtained in gonococcus infection particularly, are well deserving of consideration. "The Treatment of Rheumatism," by B. Abrahams, M. D., of Westminster Hospital, is a practical paper of much

interest. The indications for the use of aspirin and other drugs are given, and Bier's method in chronic cases highly praised. Other interesting articles are: "Management of Exhaustion States in Men," by J. M. Taylor, M. D., of Philadelphia; "A Plea for Laparotomy Rather than Paracentesis in Ascites," by George Dock, M. D., of Ann Arbor; "The Detection of the Ova of Intestinal Parasites in the Fæces," by M. Tutulle, M. D., of Paris; "Surgical Syphilis," by C. G. Cumston, M. D., of Boston; and "Post-Partum Hemorrhage and its Treatment," by J. B. DeLee, of Chicago. The illustrations are excellent and highly creditable to the publishers.

*

Dr. Herbert Leslie Burrell, President-elect of the American Medical Association, is now preparing the manuscript of quite a pretentious work on "Surgery," which the Philadelphia publishers, P. Blakiston's Son & Co., will bring out. This is another indication of Dr. Burrell's tireless labor in educational fields. The book is to be complete in one royal octavo volume, well illustrated, and, needless to say, well and authoritatively written.

*

Messrs. E. B. Treat & Company announce that they have in preparation a series of monographs on the Symptomatology and Diagnosis of Disorders of Respiration and Circulation, by Prof. Edmund von Neusser, of Vienna. It will be very gratifying to those who cannot command the language in which this eminent German clinician gave his books to the world, to learn that they have been done into English by Andrew Mc-

Farlane, of Albany. Part I., Dyspnoea and Cyanosis, is almost ready for publication. Part II. and III., dealing respectively with Angina Pectoris and with Tachycardia and Bradycardia, will speedily follow.

*

It is said that there is a daily average of 47,000 pounds of condemned food (besides the milk) destroyed by the New York City Board of Health. This poisonous material would find its way to the tables of thousands of innocent consumers in and out of the metropolis were it not for the efficiency of the inspectors in detecting

impurity. Dr. Harvey W. Wiley's book on "Foods and Their Adulterations," just ready, deals very fully with food products as they now are but as many should not be, and points a clear way to their betterment. It is published by F. Blakiston's Son & Co., Philadelphia.

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Reprints Received.

The Contamination of the Air of Our Cities with Sulphur Dioxid, the Cause of Respiratory Disease, by Theodore W. Shaeffer, M. D., Kansas City. Reprinted from *Boston Medical and Surgical Journal*.



OBITUARY.

THE LATE DR. PEPPARD.

Dr. J. L. Peppard, a prominent physician of Great Village, met death by accidental poisoning at his home Friday afternoon, Sept. 20th. The doctor and Mr. Lindsay, a friend of the doctor's, from Londonderry Station, were engaged harvesting oats. The afternoon was intensely hot, and after working for some time both men grew thirsty and went to the doctor's house for a drink of buttermilk. As they approached the residence the doctor said: "Come into the office and we will have something better than buttermilk." On the shelf were two bottles, one containing strychnine and the other a fruit syrup. The doctor took one of the bottles down and mixed a drink, of which both men partook freely and returned to work in the field. A few minutes

later, the doctor, who was driving the horse rake, was seen by his wife to fall from the seat. Realizing that he had taken poison he called to a boy near by to rush to the house and bring him a drink of mustard and warm water. The boy in the excitement forgot the message, and when Mrs. Peppard reached her husband's side he was in the throes of death, and was only able to gasp, "I am dying, wrong bottle; how is Lindsay?" And before anything could be done he passed away. In the meantime Lindsay, who was working in another part of the field, became sick and was taken to the house, where he underwent intense suffering until the following morning, when he passed away. It is believed that the doctor in mixing the drinks for himself and companion took the bottle containing the deadly poison, as they were both alike in size, shape and appearance.

PERSONALS.

The autumn examinations of the Provincial Medical Board of Nova Scotia for license to practice, which began on September 4, have been concluded, and the results are announced. There were seven candidates, of whom five, having passed in all subjects, have secured their diplomas and have been admitted to the practice of medicine in Nova Scotia. They are:

Zadok Hawkins, M. D., C. M., McGill, Sussex, N. B.; Purdy Alvan

Macdonald, M. D., C. M., McGill, Alma, N. B.; John L. McIsaac, M. D., Baltimore Medical College, Dunmore, Antigonish, N. S.; R. J. Monahan, M. D., C. M., McGill, Montreal, P. Q.; L. T. W. Penney, M. D., C. M., McGill, New Germany, Lunenburg, N. S.

The license entitles these men to practice in Great Britain in accordance with a regulation announced some time ago.

Lactopeptine Tablets

A cleanly, convenient and very palatable method of administering Lactopeptine, especially for ambulant patients.

The tart, pineapple flavor, renders these tablets as acceptable as confections. They are particularly valuable as "After Dinner Tablets," to prevent or relieve pain or distension occurring after a heavy meal.

EACH TABLET CONTAINS 5 GRAINS LACTOPEPTINE.

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DOSE—One to two tablespoonfuls three to six times a day.

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Borolyptol

A highly efficient (non-acid) antiseptic solution, of pleasant balsamic taste and odor. Absolutely free from toxic or irritant properties, and does not stain hands or clothing.

Formaldehyde, 0.2 per cent.	} Active balsamic constituents.
Aceto-Boro-Glyceride, 5 per cent.	
Pinus Pumilio,	
Eucalyptus,	
Myrrh,	
Storax, Benzoin,	

SAMPLES AND LITERATURE ON APPLICATION.

The **PALISADE MANUFACTURING COMPANY**
88 Wellington Street West, " " " **TORONTO, Ont.**

THERAPEUTIC NOTES.

The new Glyco-Thymoline Eye Bath, which is constructed from a single piece of aluminum, has been found of exceptional service when used as a vessel to heat hypodermic solutions to the proper temperature. This little hint comes from a physician who has frequently found himself wanting just such a device. The Glyco-Thymoline people will be glad to send you one of these cups if you desire it.

*

Antiphlogistine Versus Opium.

Inflamed states of the various organs of the body frequently give rise to pain of such urgent character as to demand active steps looking to its relief. Upon seeing the patient for the first time (he has called his phy-

sician because his suffering has become intolerable), the medical attendant is met with a peremptory demand for relief from the suffering.

With a willingness, which frequently overrides their judgment, some physicians resort to the hypodermic needle indiscriminately, and, in too many cases, a greater evil has followed the lesser one. The free habit of using morphine or some other form of opium is not a judicious practice, and for several reasons. The exact seat of an inflammation, for instance, might become difficult to locate, and thus a clear diagnosis interfered with. But the greater objection to the use of opium is the possibility of adding a recruit to the ever growing army of habitues.

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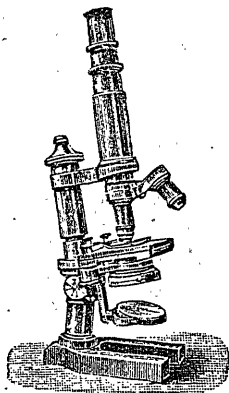
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Every time there occurs to a doctor the apparent need for opium he should deliberate well before resort is had to the needle. If, after careful consideration, his best judgment advises the use of opium, it should be given in some form by mouth. If the needle is used the patient at once knows what he is getting, but he is not so likely to acquire this information if it be given otherwise.

For relieving the pain of the inflammations Antiphlogistine will easily take the place of opium. The relief following may not be so prompt and so complete, but the edge of the suffering is taken off within a short time, and soon the patient is in a comfortable condition and has escaped the possibility of becoming addicted to a drug. There is not the likelihood that a patient, relieved from pain by it, will begin eating or using Antiphlogistine in any other way—which likelihood is the greatest disadvantage of opium.

In the future let your morphine become stale, and keep your Antiphlogistine fresh—use it in inflammation.

—*The Medical Era.*

*

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Dr. E. L. M'Kee, of Cincinnati, Ohio, speaking of Codeine, in the *Denver Medical Times*, says: "This drug, according to Butler, is one-fourth as toxic and effective as morphine. It is less depressing and more stimulate, does not constipate cause headache or nausea, and rarely leads to the formation of a habit. Codeine seems to exert a special, selective sedative power over the pneumogastric nerve, hence its value in irritative laryngeal, pharyngeal and phthisical coughs with scanty secretion. Like morphine, it has proved of value in checking the progress of saccharine diabetes, and it has been

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used for long periods without the formation of the drug habit, inasmuch as when glycosuria was brought to a termination by dietary and other measures, the cessation of the use of codeine was not followed by any special distress. The effects of codeine on the alimentary canal is excessive, as in dysentery. The statement that codeine is simply a "little morphine," only differing from the latter in the size of the dose, is an erroneous view, as can be ascertained by any one who closely observes the action of the two drugs."

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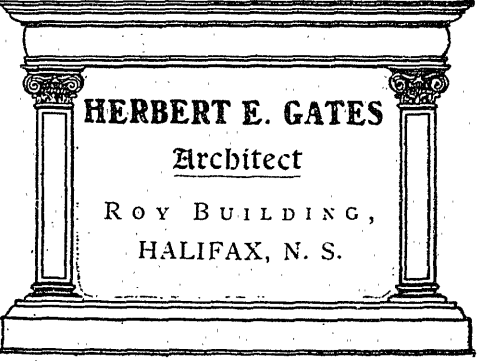


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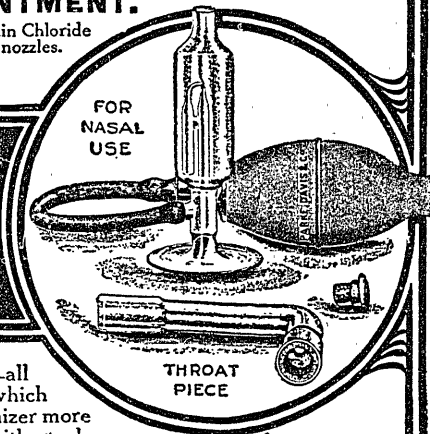
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