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HALIFAX, NOVA SCOTIA, OCTOBER, 1903.

No. 10.

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3RD YEAR.—Surgery, Medicine, Obstetrics, Medical Jurisprudence, Clinical Surgery, Clinical Medicine, Pathology, Bacteriology, Hospital, Practical Obstetrics, Therapeutics.
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4TH YEAR.—Surgery, Medicine, Gynaecology and Diseases of Children, Ophthalmology, Clinical Medicine, Clinical Surgery, Practical Obstetrics, Hospital, Vaccination, Applied Anatomy.
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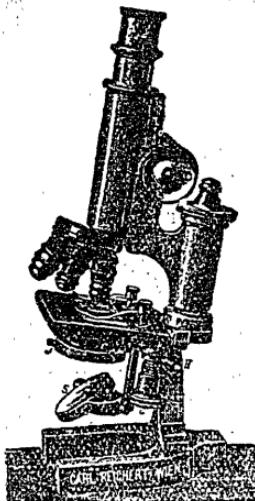
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A MONTHLY JOURNAL OF MEDICINE AND SURGERY.

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THE
MARITIME MEDICAL NEWS.
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No. 10.

Original Communications.

**REMARKS ON DISEASES OF THE BILIARY PASSAGES,
WITH SPECIAL REFERENCE TO SURGICAL TREATMENT.***

By MAURICE H. RICHARDSON, M. D., Professor of Clinical Surgery, Harvard University.

In the present communication I wish to consider, first, gall-stones; secondly, cholecystitis; and thirdly, those affections of the pancreas dependent upon gall-stones.

The diseases of the biliary passages which are directly or indirectly dependent upon gall-stones and which are amenable to medical treatment are few; but the diversity of their manifestation is great. The condition is a mechanical one. In the very beginning gall-stones probably owe their existence to the presence of a mechanical irritant, usually in the gall-bladder, though possibly elsewhere,—generally in the form of micro-organisms. In some of my cases the bacillus typhosus has been found in the very centre of a gall-stone, after an existence of many years. In others the infection of the gall-bladder has been owing to the colon bacillus; in others, to the pneumococcus; in still others, to other forms of micro-organisms. Gall-stones, by their presence in the gall-bladder, make that viscous peculiarly susceptible to infection, either through erosions of the mucous membrane by pressure, or in some other indirect and little understood way. Infection situated elsewhere in biliary passages than the gall-bladder,—in the hepatic, cystic, or common ducts, as well as many infections in the pancreas—are doubtless due indirectly to the presence of gall-stones. Much more common, however, than the symptoms owing to infections, are those owing to impactions of stones. A small stone engaged in the cystic duct, passing thence into the common, and thence into the duodenum, gives rise to the ordinary form of biliary

*Read at meeting of Maritime Medical Association, St. John, N. B., July 23rd 1903.

colic. Permanent impactions in the cystic, hepatic or common duct give rise to symptoms of long duration with exacerbations and with remissions, with irregularities of pain, jaundice, and fever, and manifestations of sepsis. In many cases gall-stones are latent in the gall-bladder, no symptoms whatever being noticed by the patient attributable to their presence. I find, however, that in cases of gall-stones in the gall-bladder which ordinarily would be regarded as latent, careful inquiry, after the establishment of the diagnosis by surgical exploration for other lesions, has shown that there are symptoms which can be explained best by the presence of stones in the gall-bladder.

Chronic inflammations of the pancreas dependent upon gall-stones afford a very interesting chapter in connection with this subject. The cases of pancreatitis, acute and chronic, have been thus far infrequent; yet I have no doubt that in very many instances the pancreas shares in the general derangement of the biliary system. To my mind an exact demonstration of the exact lesion of the pancreas known as *chronic pancreatitis* has not been made; and, in the nature of things it will be made only with great difficulty. In many cases I have found an enlargement of the pancreas, a thickening and induration, and sometimes an irregularity strongly suggestive of cancer. In such conditions I used to close the abdomen on the supposition that the disease was cancer, and hopeless. The prompt recovery, not only from the exploration, but from the symptoms which called for that exploration, with permanent restoration of health, was to me very astonishing. I have regarded these cases as cases of chronic pancreatitis, and though infrequent I have had of them a very considerable number.

There is, therefore, in the diseases to be considered a great diversity; and this diversity is almost wholly owing to the various mechanical ways in which the gall-stones affect the biliary passages.

A very important consideration in this paper, and one which influences me perhaps more than any other, is that of bringing to the attention of the medical profession as vividly as possible my experience in the disastrous effects direct or indirect of gall-stones, when left to themselves, compared with the brilliant results of early surgical treatment.

The material upon which this paper is based consists of my private cases and of the cases treated at the Massachusetts General Hospital. I have not been able to go through the records of the hospital with thoroughness, or to collect from my own records the full number of cases which have been under my direct observation. The number, however, has been very considerable. At the Massachusetts General Hospital the number of operations upon the biliary passages has been three hundred more or less. Besides these operative cases there have

been a large number of patients treated medically. Some of these patients have been advised against operation, while others have declined surgical intervention even when operation has been strongly recommended. In my private cases there have been many in which no operation has been thought justifiable. Many of these patients I saw early in my practice,—long before gall-bladder surgery had reached its present perfection; in similar cases I now have some of my best results. There have been many cases in which gall-stones have been discovered in the course of other abdominal operations. In the latter cases I have had an unusual opportunity, after the exact demonstration of the physical attributes of biliary passages containing stones, to ascertain accurately the symptoms possibly dependent upon these abnormal conditions. The material upon which my remarks are based seems to me, therefore, abundant.

Up to recent years the pathology of gall-stone disease was dependent wholly upon the autopsy table. In cases of gall-stone disease fatal of itself the pathological changes were necessarily of the most chronic and extensive character. It was possible to learn very little of the anatomical conditions present early in the disease. Even to-day the demonstration at autopsy of changes dependent upon gall-stones is necessarily imperfect. Abnormalities which during an operation on the living would lead the surgeon perhaps directly to the seat of the lesions,—variations in color, consistency, friability, and the like,—are not noticeable in the dead, these variations from the normal having either entirely disappeared after death or having been lost in rapid post-mortem changes. Unfortunately, however, the pathological conditions of gall-stones to-day in a great many cases—happily growing fewer year by year—are those long since demonstrated at autopsy of advanced and practically untreated mechanical disease. It happens frequently enough to excite remark that in operations upon the very earliest known manifestations of gall-stones, ancient, serious, and extensive conditions are found which have taken place gradually in the course of many years without causing any unusual or even noticeable symptoms. I have seen for instance a gall-stone completely obstructing the small intestine in a patient of sixty-five who had never in his life a moment's pain. This stone must have formed in the gall-bladder and ulcerated into the intestine, where it became lodged. That this could have happened without causing pain seems to me extraordinary. It illustrates very well the remark just made,—that the condition may be severe without previously existing symptoms. In many cases the gall-bladder will be found thickened, contracted, everywhere adherent, filled with pus or muco-pus, with here and there a gall-stone ulcerated into its surface; and this after a history in which perhaps the most remarkable symptom has been a

slight dyspepsia or an occasional discomfort in the right upper quadrant. Sometimes one finds a single stone or chain of stones hopelessly impacted in the cystic duct, the only manifestations of disease being occasional pain with tenderness over the gall-bladder. A stone impacted in the common duct, or in the hepatic duct, would seem necessarily to cause a permanent jaundice. I have seen not a few cases, however, in which the jaundice has been transitory, even when the stone has been hopelessly impacted. The stone acts as a ball valve, becoming at one time tightly impacted and causing jaundice, at others loosened enough to permit bile to pass, relieving jaundice. In the beginning I looked upon a stone in the common duct, or in the hepatic duct, as necessarily causing jaundice. On the other hand, the absence of permanent jaundice seemed to me to prove beyond a doubt that there could be no stone in these ducts. Numerous cases have shown the error of such observations; and the surgeon who argues, from the disappearance of jaundice, that the stone has made its way into the duodenum, will often find himself mistaken.

Although far-reaching and lethal changes are now occasionally found when there have been no previous symptoms of severity; yet in the great majority of cases the changes in the biliary passages are of a trivial nature, when the diagnosis is made early. It follows from the general remarks that I have just made as to the great variation in appearances, that one found in the early surgery of gall-stone disease a great diversity of results. Many early cases were of the most formidable nature; operations for relief were difficult; dissections were deep and tedious; shock was great; the patient's ability to withstand shock was impaired by suffering as well as by disease; and the operator had not had opportunities of acquiring skill. The mortality therefore, of the early cases of gall-bladder surgery was excessive. The surgery of the past fifteen years—and especially of the last ten years—has shown that the mortality, even in the severest cases, is not excessive; and that in the easy cases there is practically none.

The burden of my communication is, therefore, to show the great frequency of gall-stone disease, the great variety of its manifestations and the brilliant results of surgical treatment.

I have referred to cases in which gall-stones have been found during abdominal operations for other diseases. For a long time it has been remarked, especially by those opposed to frequent operations for gall-stones, that in many cases autopsy shows the existence of gall-stones that have never been suspected. And this argument has been used in opposition to the rule that gall-stones should be removed as soon as they begin to offend. I have already spoken of the frequency with which I have found gall-stones during operations for other lesions; but I am not ready to admit that gall-stones can exist in the

gall-bladder without causing any symptoms whatsoever. After the demonstration of gall stones, I am sure that one will find symptoms dependent upon those stones. Nothing is, I suppose, more common than an occasional distress in the epigastrium,—an occasional pain, an occasional disagreeable sensation. These symptoms are always attributed to dyspepsia. When we think how common the symptoms of dyspepsia are, how few people go through life without having at one time or another some form of what is called indigestion, we find at once in gastric symptoms alone a possible refutation of the statement that gall-stones may exist without causing symptoms. Up to very recently it would have been the height of absurdity to say that a transitory discomfort in the region of the stomach was caused by gall-stones. The physician who would make a diagnosis of gall-stones from sensations which the layman has for many years called dyspepsia would be ridiculed. I have not the least doubt, however, that many—even most—of the cases of dyspepsia are owing to mechanical interferences either with the stomach itself, or the pylorus, the duodenum, or the biliary passages. I have seen too many cases of chronic dyspepsia completely cured by surgical operations upon an organ even so far remote from the stomach as the vermiform appendix to regard with surprise the possible dependence of trivial gastric symptoms upon gall-stones. In the cases which I now have under observation and in which I know that gall-stones are present, I am watching with great interest the development of all symptoms connected with the epigastrium. It is in the consideration of cases of this kind that the future of gall-bladder surgery lies; for it is in the cases in which gall-stones are removed at a time when they cause so little trouble that their presence can hardly, even now, be suspected, that the most brilliant results follow. Gall-stones in the gall-bladder are a constant menace to health. No man can say when the first stone will become impacted in the cystic duct. Once impacted there, it is the source of a long train of severe symptoms. No one can tell where it will end; all that the surgeon can be sure of is that the removal of gall-stones from the unaffected, or but slightly affected gall-bladder is as certain to be immediately and permanently successful as any operation in surgery. It is to the consideration of cases at this period that surgeons urge the attention of the medical profession. It is at this time that surgeons call upon the physicians to make their diagnosis. To make a diagnosis of gall-stones when the attention is called to them by so conspicuous a symptom as jaundice, requires little either in experience or in skill.

Numerous observations upon the living, not only in cases of gall-stone disease but in the course of other abdominal operations, have convinced me of the futility of any but surgical measures in the

radical treatment not only of gall-stones themselves but of their effects. Although variations from the normal may be excessive, even if there have been no symptoms whatever pointing to the biliary passages; yet, on the other hand, the gall-bladder may be packed with gall-stones without any apparent changes either in its walls or upon its peritoneal surface. In some instances it is possible to predict very considerable changes from the normal, especially when there have been many and frequent attacks of pain, with fever and local tenderness. Simple attacks of biliary colic, without fever, are not likely to be followed by changes in the gall-bladder. The relation between cause and effect, as shown by frequent explorations after attacks of gall-stone symptoms, is interesting and important. One can often predict a difficult and dangerous operation from the changes likely to be found after certain histories. On the other hand, he can often with confidence predict a slight deviation from the normal, and an easy and successful operation.

The importance of frequent observations upon the living cannot be overestimated in considering the subject of gall-stone diseases; for opportunities for post-mortem examinations are, from the nature of things, infrequent, and when patients die of gall-stone disease one is likely to find only the old and the extensive changes. Only those cases of trivial gall-stone lesions are observed post-mortem which accompany deaths from other and more serious diseases. In all post-mortem observations delicate attributes are lost. One can get on the post-mortem table no information whatever as to color or consistency, for the changes that take place after death are so great that one can infer but little from appearances. The mechanical lesions of gall-stones can be demonstrated after death as well as before, and perhaps in some instances better; but the greater part of the knowledge regarding the anatomical appearances in gall-stone diseases, and the relation between these appearances and the histories, both before and after operation, has been gained almost wholly by observations made during surgical operations.

Time does not permit me to consider my subject from the pathological and anatomical standpoint. The changes vary between the widest limits in the appearances, both of the gall-bladder and of the contiguous viscera.

I have described in other papers the changes that take place in the gall-bladder, in the ducts, in the duodenum, in the hepatic flexure of the colon, in the bile, and in the liver. Some of these changes I shall refer to later in connection with operative procedures. I should say that the anatomical appearances are almost wholly mechanical, the changes are mechanical, the causes of symptoms are mechanical, and the remedies must be mechanical.

Symptoms.—The symptoms of gall-stone disease are:

- I. Mechanical symptoms caused by gall-stones directly:
- II. Symptoms caused indirectly by gall-stones through infections.

THE SYMPTOMS OF GALL-STONES THEMSELVES.

(1.) I have little to say as to the symptoms of gall-stones in this communication. I assume that the conventional signs of gall-stones are very generally understood. A typical gall-stone attack consists of sudden and severe pain, returning in paroxysms, beginning with the engagement of the stone in the cystic duct, and lasting until its expulsion into the duodenum. The onset of the attack is sharp; its course violent; its duration variable; its end sudden. The attack is, as a rule, brief. The pain can be controlled only by large doses of morphia or by general anaesthesia. When a stone obstructs for any length of time the flow of bile, there will be either a visible jaundice or sufficient absorption of bile to appear in the urine. After subsidence of symptoms and disappearance of jaundice careful search may show one or more gall-stones in the stools. Such an attack, even if never repeated, is indicative of gall-stones. Although a single gall-stone may be formed in the gall-bladder and thus be expelled, the chances are very great that in most cases more than one gall-stone remain in the gall-bladder.

A simple biliary colic, caused by the successful passage of a stone, is frequent. One who has seen many such cases can make the diagnosis with such accuracy that the proving of the diagnosis by the discovery of the stone in the stools is hardly necessary.

(2.) The second class of gall-stone symptoms is much less characteristic. This class comprises the cases in which gall-stones exist either in the gall-bladder or in the ducts. The gall-stones, however, escape neither from the gall-bladder nor from the ducts. By far the greater proportion of the cases with which gall-bladder surgery deals belong to this class. The calculi are not expelled: they remain in the position in which they were when they began to cause symptoms. One may find a large number of stones confined to the gall-bladder. In these cases the history will be that of pain or distress either in the right upper quadrant or in the epigastrium. If the stones are confined to the gall-bladder, there will of course be no jaundice. The cause of the pain is a matter of speculation, and one guess is perhaps as good as another. The cause of pain in the successful passage of a stone is probably spasm,—like the pain in the passage of a renal stone through the ureter. It is hard to understand the cause of paroxysmal pain when stones are confined to the gall-bladder, and when none of them are engaged in the cystic duct; but, as I have said, in the majority of

cases of gall-stone colic no stone can pass into the ducts, for the entrance to the duct is so obstructed by a single stone of large calibre that no small stone can possibly get by it. The same thing is true in many cases of stone in the common duct. In many instances the symptoms are owing to infection. The gall-bladder will be found thickened and contracted upon one or more stones, with ulceration of the mucous membrane, and it will contain either pus or pus mixed with bile. I have seen a large number of such cases, and I am at a loss to explain the pain. In many cases the only discomforts complained of are nausea and distress; in some there is excruciating pain; in some simple dyspepsia. The chief symptom in this form of gall-stone disease is pain, in some form or other, recurring at irregular intervals, with fever and with local tenderness. The history is that of the mechanical effects of gall-stones themselves upon the gall-bladder, with those of more or less septic absorption.

(3.) A third class of gall-stone symptoms comprises those cases in which there is a tight impaction. These impactions are usually in the cystic duct or in the common duct,—very rarely in the hepatic duct. In impactions of the cystic duct the one symptom of importance is the dilatation of the gall-bladder, with pain, and usually with a tender tumor (distended gall-bladder.) There is no jaundice when the cystic duct is impacted. There is pain, either at irregular intervals, or constant, with a tender tumor in the region of the gall-bladder. Occasionally the impaction is overcome: bile escapes from the gall-bladder around the stone, and the case becomes quiescent. If an infection takes place when a stone is impacted in the cystic duct, this infection may go on to gangrene and perforation, the symptoms of which are either the symptoms of a localized peritonitis in the right upper quadrant, or a rapidly-spreading general infection from the escape throughout the peritoneal cavity of infected bile. In some cases, under appropriate treatment,—rest, local applications, and anodynes,—the gall-bladder empties itself around the calculus, or the calculus slips back from its seat of impaction into the gall-bladder. In such cases the infection disappears, and the symptoms subside. The gall-bladder, however, does not recover its normal condition: it is, by the attack, thickened in its coats, and its distensibility is somewhat lessened. With repeated attacks like this, the gall-bladder becomes in the course of time contracted tightly upon the stones which it contains. In this way, after many attacks, the gall-bladder will be found as a thickened, resistant, adherent knob on the under surface of the liver, near the foramen of Winslow.

When a stone is permanently and tightly impacted in the duct, and when there is, therefore, no possibility of the escape of fluid through the cystic duct, the gall-bladder may become permanently distended. I

have seen such a gall-bladder enormously distended with colorless fluid—chieflyropy, transparent mucus from its own mucous membrane. Whatever bile it may contain in the beginning becomes decolorized. In this class of cases the gall-bladder presents a more or less definite tumor. When a stone becomes impacted in the common duct in its passage from the gall-bladder to the duodenum, the symptoms are, first, those of ordinary biliary colic. If the stone is hopelessly impacted the jaundice becomes marked; then severe; then extreme; the stone not budging at all and not permitting the escape of bile around it, and not yielding in the least to the *vis a tergo*. Pain gradually ceases. An attack of this kind, beginning with the most violent and unbearable paroxysms of pain, may end in a painless jaundice. Few, if any, cases of impaction in the common duct,—all these remarks apply, too, to the hepatic,—are unattended by pain. Pain in some form or other, from simply an uneasy sensation in the epigastrium to the violent and unbearable paroxysms of biliary colic, is the rule in all cases if gall-stones offend at all. On the other hand, that gall-stones do exist without causing any pain, cannot be denied; but even in these cases there is some interference with digestion. When, after very careful questioning, no such symptoms can be elicited, grave doubt is thrown upon a gall-stone cause for the history; whatever it may be.

SYMPTOMS CAUSED INDIRECTLY BY GALL-STONES, THROUGH INFECTIONS.

The symptoms of infection of the biliary passages may be very obscure. I do not intend to discuss in this paper the subject of infections of the bile ducts through the liver. Cholangitis,—typhoidal, catarrhal, suppurative, infectious,—although a subject of great interest, does not come within the scope of this communication. Doubtless more or less infection exists in many cases of gall-stone impaction in the common duct; but diffused infections, although they exist, are beyond the powers of surgery to remedy. Trivial infections, affecting perhaps one of the larger radicles of the hepatic duct, easily amenable to drainage, doubtless exist, without causing any especial symptoms. These infections rapidly subside with the free drainage of cholecystotomy or choledochotomy. Infections of the gall-bladder are an important branch of biliary surgery, for these diseases permit the most brilliant successes after drainage. They present in their history and in their symptomatology one of the gravest and one of the most urgent lesions of the abdominal cavity. The history of an acute cholecystitis is very characteristic. In many cases the acute attack is preceded by a history of gall-stones. Careful inquiry will show that there has been either a well-defined history of recurring attacks of biliary colic, or that there have been in the region of the gall-bladder the symptoms

of gall-stones already described. In some cases, however, infection of the gall-bladder may take place without the presence of gall-stones at all. One of the most familiar infections is that occurring in the course of typhoid fever. Doubtless in many cases the subsequent formation of numerous gall-stones follows the original appearance of the bacillus typhosus in the gall-bladder during the course of typhoid fever; but in a very considerable number of gall-bladder infections no gall-stones whatever are found. In a paper on this subject that I read some years ago before the Philadelphia Academy of Surgery, I reported a number of cases of cholecystitis in which no gall-stones were found. I am inclined now to think—from what I have seen of this disease since, and from the subsequent history in one or two cases then reported—that gall-stones existed, but were overlooked. I now fully expect to find, in a case of infection of the gall-bladder, one or more gall-stones, either in the gall-bladder itself or in the cystic duct. A history then, even if very obscure, of gall-stones, preceding an attack of sudden pain in the region of the gall-bladder, with tenderness there, with fever, usually with a well-defined, resistant, tender tumor, points almost invariably to a cholecystitis. In some cases the symptoms of acute gall-bladder infection, which constitutionally are like those of any other form of localized peritoneal infection, become suddenly aggravated by a general peritonitis. In some of these cases there is a complete gangrene of the gall-bladder, with the escape of its infected contents. I have seen a few instances of complete gangrene of the gall-bladder, but never one of perforation of a gangrenous gall-bladder. One reason is that in my cases I have been called before rupture has had time to take place, and when the symptoms have been so imperative that I have operated. An acute infection of the gall bladder, as I have already remarked, does not necessarily result in gangrene or in perforation. In the majority of cases the acuteness of the symptoms subsides and the gall-bladder manages to drain itself, either because the stone has become detached from its impaction and has fallen back into the gall-bladder; or, in case there is no stone, because the swelling of the mucous membrane has subsided and permitted the escape of gall-bladder contents into the duodenum. With the confidence born of inexperience and ignorance, I stated some years ago that acute cholecystitis always demanded operation; that it always went on to suppuration, with or without gangrene, and with perforation. My experience has become so much larger of recent years that I have seen the folly, in this instance at least, of basing a strong opinion upon a limited number of cases. I think it is safe to say that, in the majority of cases of acute gall-bladder infection, that this infection will under palliative measures subside. I have found not a few in which it was possible to wait for the period of quiescence before opening the gall-bladder. The analogy between the infected gall-bladder and the infected appendix is strong.

In both organs, even under the most threatening conditions, the acute symptoms may subside, and an operation may be permitted in the period of comparative health, when the dangers of spreading the localized infection are reduced to a minimum, and when the patient is in a good condition to undergo safely a severe operation. On the other hand, in many cases of cholecystitis, as in many cases of appendicitis, the danger of waiting for the subsidence of the symptoms is too great to permit palliation. The symptoms in these cases are so imperative that immediate drainage is demanded. A little experience in the surgery of acute cholecystitis will show, I think, the best course to pursue in the different classes of cases. My own rule is to drain the gall-bladder in all acute infections, unless I see the patient at a time when the symptoms have already begun to subside. As time goes by, the reasons which to my mind justify delay in infectious processes of the biliary passages must be stronger and stronger, just as in appendicitis. Symptoms increasing in severity, or at a stand-still, are extremely grave; and make the outlook serious and the responsibilities of deferring drainage too heavy to be borne with equanimity. If a patient is rapidly improving, if constitutional signs are subsiding, if the localized tenderness is diminishing, if the tumor is growing smaller, then the advantages of an operation in the period of quiescence are so great, and risk of a sudden exacerbation of local signs so slight, that in my opinion one is justified in waiting for the most favorable local and constitutional condition for intervention.

The symptoms of acute cholecystitis are, as a rule, clear.

Diagnosis.—The diagnosis of the lesions caused by gall-stones has been considered somewhat in the foregoing remarks. The diagnosis is generally easy and sure. There are many cases, however, in which the symptoms themselves, though not pointing directly to gall-stones or to any other definite lesion, demand operation. In some cases these symptoms merely justify operation; in others they demand intervention in the strongest terms. When we come to the indications for operation, it is well to consider those cases in which the diagnosis is positive, and those in which the diagnosis is obscure. In the positive cases operation is, in my judgment, indicated, unless there are contraindications in the patient's general condition or in the condition of other viscera. In certain cases an exploration is indicated because, if gall-stones do not exist, other lesions may be found which are quite as disabling and sometimes much more serious than gall-stones.

To me the diagnosis of lesions of the biliary passages is one of the most interesting topics connected with the subject. In former days, when the diagnosis was always speculative, never verified except by autopsy or in those rare instances in which the gall-stone was found in the stools, the matter of diagnosis necessarily was attended by much less interest. At the present time when, in almost all cases, operation is or should be performed, surgery is the control of diagno-

sis. In considering the history, the existing symptoms, the physical signs, the physician knows that the correctness or the falsity of his opinion will soon be established. The effect of this is to make him extremely careful in his observation of the case, and in the formation of his opinion, and moreover modest in expressing it. One may be ever so positive in expressing an opinion when there can be no chance of demonstrating the truth of that opinion; but when the surgeon stands over the patient, knife in hand, even the most positive and confident consultant may hesitate. It is by the demonstrations of surgery that the skill of the diagnostician is determined, just as is it by the same demonstration that the connection between cause and effect, between histories, symptoms, physical signs, and actual lesions, is demonstrated. The diagnosis, therefore, of disease of the biliary passages has, in the present era of extraordinary surgery, a surpassing interest.

The great frequency of explorations in the right upper quadrant has given the surgeon unusual skill in the diagnosis of lesions in this area, just as the frequent explorations in the right lower quadrant has given him skill in that region of the abdomen.

In the beginning I felt convinced of the presence of gall-stones only when they were demonstrated in the stools. It seemed then essential to discover a gall-stone in the stools after a typical attack of biliary colic. It soon appeared, however, that the number of cases of gall-stones in which this positive demonstration could be made was comparatively small. To make a diagnosis required repeated attacks of colic and prolonged examination of the stools. In many cases the gall-stone would escape observation, even if the movements were carefully sifted. In other cases the stones were soft, and were broken up and the fragments lost. The history of an ordinary gall-stone attack was proved so frequently to be pathognomonic of gall-stones, that I long ago gave up the tedious search for gall-stones in the stools. I now myself recommend this search if patients are particularly anxious to be convinced of the presence of stones; but I regard it as unnecessary.

The diagnosis of gall-stones, single or multiple, lying in the gall-bladder, too large to escape, is a very interesting problem. The history in cases of this kind is extremely obscure. It is evident that there can be no symptoms dependent upon the passage of a stone if it is impossible for one to escape. One will not have, therefore, the history of a small calculus passing through the cystic duct and the common duct into the duodenum. There will be absence of that paroxysmal and characteristic pain. There will be no jaundice. The attack will neither begin suddenly nor end suddenly. The symptoms which the stones in the gall-bladder produce will be the first sign of what I have called *offending*. Under the pathology of gall-stones in the gall-bladder I have considered some of the lesions which gall-

stones confined to the gall-bladder may produce. These symptoms of offence are in the beginning those of discomfort or distress, sometimes of actual pain. This pain may be paroxysmal like the pain of a passing stone, probably from the violent efforts of the gall-bladder to expel them. The stones cause these obscure symptoms of discomfort and uneasiness in some not understood way. Tenderness after the attack may or may not be present. Stones are, of course, never found in the stools. The gall-bladder may be distended and palpable, especially if its contractions force a stone tightly into the beginning of the cystic duct or into the narrow, pear-shaped depths of the gall-bladder. I have seen not a few instances in which a stone has been tightly grasped, not by the fibres of the cystic duct, but by the fibres of the gall-bladder itself. The diagnosis of gall-stones thus offending in the gall-bladder may be extremely difficult. One must distinguish between the grumbling of a gall-bladder and of the stomach itself,—a gastralgia, a dyspepsia; between the grumbling of a gall-bladder and lesions of the right kidney, duodenal ulcer, chronic infection of the pancreas. The most important diagnostic points of gall-stones in the gall-bladder are the irregularity of the onset of distress, the lack of association with errors in diet, the irregularity in the duration, in the method of onset, in the method of subsidence, and the general similarity between the successive attacks.

I have had a chance to observe the symptoms of this form of gall-stone disease when the diagnosis was made at operative exploration, before there had ever been any conscious discomfort in that region. One patient had a gall-bladder perfectly filled either with one large or many small stones simulating a large one. The patient had never the least trouble from her gall-stones. The diagnosis was, of course, sure; for I saw and felt the gall-bladder. The operation during which I examined this gall-bladder was an abdominal hysterectomy. During convalescence the patient had an attack of what she would have called *acute indigestion*; but there was tenderness over the gall-bladder. I have no doubt that the acute indigestion was simply a manifestation of gall-stone irritation. I have under observation several patients upon whom I have performed abdominal hysterectomy, and upon whom I have demonstrated the exact condition of the biliary passages with reference to gall-stones. Some of them have as yet had no symptoms whatever. Others had had, at irregular intervals before operation, some indefinite discomforts usually regarded as dyspepsias. The diagnosis, then, of gall-stones in the gall-bladder, without especial anatomical changes in the gall-bladder and without infections or cystic duct impactions rests entirely upon these obscure pains, discomforts, and so-called dyspepsias. They give rise to no other symptoms whatsoever in the beginning.

When the gall-bladder can be felt by palpation through the abdominal walls, it is always abnormal; and this abnormality is usually a

distention caused by a gall-stone impaction of the cystic duct. A gall-bladder filled with stones may be felt in very thin patients, if it is much enlarged. I have never met with such a case, however. The diagnosis may then be made without any subjective symptoms, for the objective ones will be conspicuous and unmistakable.

What the very earliest signs of gall-stones may be, it is hard to say. Obscure, indefinite pains in the epigastrium, the hypochondrium, the back; dyspepsia, gastralgia, or any other functional disturbances connected with digestion. These gastric symptoms, so obstinate, so disabling are the commonest met with in medical practice. They are present in many cases of undoubted gall-stones, as in many if not most of chronic appendicitis. If they are not dependent upon a physical lesion, why do they disappear after removal of, say, an inflamed appendix? Why do the patients recover entirely and permanently after the removal of gall-stones?

The very first symptom of gall-stones in the gall-bladder, except that of a biliary colic, is, I am convinced, some form of pain or discomfort either in the immediate region of the gall-bladder or in the epigastrium. The attack may begin suddenly, or it may begin and end gradually. It may begin gradually and end suddenly, or begin suddenly and end gradually. It is sometimes noticeable, though it may not be mentioned. It may even be recalled with difficulty. The pain, distress, discomfort, or whatever the sensation may be, has in gall-stones a great significance. Just what these symptoms may be, just how frequent, invariable, and convincing, can be told only after sufficient observations upon those patients in whom gall-stones have been found in the course of abdominal explorations for other causes. I repeat that many cases of so-called dyspepsia, gastralgie, and other, functional disturbances of the stomach, the pylorus, and the duodenum are simply the earliest manifestations of gall-stones. The demonstration of the truth of this conviction is at present impossible. A systematic demonstration of the condition of the gall-bladder in all abdominal operations which permit the short time necessary to make them, will, I am sure, show the truth of this remark.

The diagnosis of gall-stones in the cystic duct and in the common duct is usually easy. A history of gall-stones, followed by a dilatation and tenderness of the gall-bladder, points to impaction of a stone in the cystic duct. The only error will occur from the dilatation of the gall-bladder from obstructive disease of the pancreas. Dilatation of the gall-bladder in cancer of the pancreas is very common; but this is always attended by jaundice. A dilated gall-bladder, following a more or less definite history of gall-stones, means always a stone impacted in the cystic duct. There is, however, a chance of mistaking a cystic duct impaction for a new growth of the gall-bladder; but in neoplasms of the gall-bladder the patient's age, the emaciation, the cachexia, usually point with more or less certainty to the truth.

The diagnosis of gall-stones in the common duct used to seem as easy as the diagnosis of biliary colic, but I have been in this matter confounded by finding myself entirely mistaken in several particulars. A gall-stone impacted in the common duct must, it would seem at first thought, cause invariably a permanent jaundice. As a matter of fact, however, though rarely, a gall-stone may remain for a long time in the common duct without causing either a permanent or a transitory jaundice. A transitory jaundice is, however, the rule in transitory infections; a permanent one in permanent infections. There may, however, be a brief transitory jaundice with the stone still confined to the duct. This phenomenon I have explained, the stone acting as a ball-valve, and moving freely up and down in the dilated duct. The lesions to be distinguished from common duct impaction are cancer of the pancreas, and chronic pancreatitis. Gall-stone impactions are always preceded at some time or other by pain. The pain in the initial impaction is a typical biliary colic. That pain, however, after a time subsides, the duct becomes dilated, the spasm ceases, and a painless, permanent jaundice or a painless intermittent jaundice follows.

In cancer of the head of the pancreas, jaundice comes on slowly and is permanent. Though in its development it may show remissions, once the closure is complete it is permanent. There is no pain at any time. This absence of pain is the most characteristic sign of a neoplasm of the pancreas. Though a cachexia is often present in prolonged gall-stone jaundice, the cachexia of cancer is, as a rule, more characteristic than the cachexia of gall-stones. One must not, however, in making a diagnosis, give too great weight to the cachexia. I have seen just as marked a cachexia in gall-stone impaction, in patients of suitable age, as I have seen in cancer of the head of the pancreas. Indeed, I have been surprised, after making a diagnosis of cancer of the head of the pancreas, to find gall-stones, just as, in exceptional cases, I have been surprised to find gall-stones after making a positive diagnosis of cancer of the head of the pancreas. An absolutely positive distinction between these two lesions cannot be made. It is the duty of the surgeon, therefore, to explore in every case, no matter how strongly he may be inclined to the diagnosis of cancer.

Between a gall-stone impaction and a chronic pancreatitis with pressure on the common duct, distinction cannot be made. A chronic pancreatitis is almost always accompanied by gall-stones, so that even if the diagnosis of gall-stone in the common duct or in the cystic duct or in the gall-bladder is positive, one must not be surprised to feel an enlargement of the head of the pancreas, sometimes presenting to the touch features so suggestive of cancer that it is hard to convince one's self that cancer is not present. I have seen now some twenty or thirty cases of chronic pancreatitis accompanying lesions of the biliary passages dependent upon gall-stones. Every patient has recovered.

Some of the cases seemed to the touch so much like cancer that it is hard to realize that permanent recovery has followed.

The diagnosis of infections of the gall-bladder is easy. A year ago I should have said that it was almost impossible to make a mistake. In the beginning of my experience with acute cholecystitis I made the mistake of calling the disease appendicitis. I observed the same mistake in the experience of some of my colleagues. Operating, in the early days, for appendicitis only when there was clear evidence of pus, we would find a tumor, with resistance, higher than usual. The diagnosis of acute appendicitis, with abscess, would be made. We began to find that occasionally the tumor was an excessively dilated, inflamed, and gangrenous gall-bladder. I have reported a good many of these cases. When our attention had been drawn to the gall-bladder as an organ the lesions of which frequently simulated appendicitis, the history, the constitutional signs, the local signs, and especially the tender tumor at the exact site of the gall-bladder, made a diagnosis apparently impregnable. In operating recently, however, upon such a case in which I made the diagnosis with the utmost confidence, having a history not incompatible with the existence of gall-stones, and feeling a tender tumor at the exact site of the gall-bladder, after incising the abdominal wall, I was amazed to be greeted by a spurt of fecal-smelling pus which at once suggested appendicitis. I found a gangrenous appendix resting upon the gall-bladder and kidney. The time will undoubtedly come when such a mistake in diagnosis will not be made. I should very likely in this case have made a correct diagnosis if the symptoms demanding operation had not been so clear and so urgent. The case was an emergency. There had been pain, fever, tenderness, and there was a tumor presenting which, whatever its nature, demanded drainage.

Some of the milder infections of the gall-bladder are harder to make out. As I have already remarked, a gall-bladder containing gall-stones may, through successive infections, gradually contract upon the contained stones. A gall-bladder thus contracted disappears entirely from the possibility of palpation. It retracts, and in many cases will be found as a mere knob on the under surface of the liver. It is this tendency of the gall-bladder to contract after repeated infections which justified Courvoisier's law in this regard. A gall-bladder which has never become thickened will with impactions of gall-stones in the cystic duct, the common duct, or with obstruction of bile from enlargement of the pancreas or from any other cause, always become dilated. A gall-bladder which is the seat of repeated infections will in time always become contracted. The active cause is the infection, and the diagnosis of infection will in extreme cases depend entirely upon the history.

The diagnosis between an acute infection of the gall-bladder and a pyonephrosis is usually easy, though sometimes difficult. The

history of pus in the urine, either continuously or intermittently, in combination with a tumor in the region of the gall-bladder, indicates with sufficient clearness a renal origin, even if the tumor occupies the position usually taken by a distended gall-bladder. The chief difficulty in diagnosis arises when the pyonephrosis is chronic and intermittent, the urine being unaffected during the period of observation—necessarily brief in urgent cases—and the history obscure. I have operated on one patient, expecting to find an acute cholecystitis, and have found an acute pyonephrosis.

When the gall-bladder is fixed by adhesions to the stomach, the duodenum, or the colon, the mobility by which one is able to recognize the gall-bladder is lost. Acutely infected gall-bladders, however, are almost always fixed: they move but little even with the movements of the liver. I have seen sometimes symptoms of acute intestinal obstruction accompanying acute cholecystitis. This acute obstruction is not a real one, but is simply a temporary paralysis of the hepatic flexure of the colon. It disappears after drainage of the gall-bladder.

The diagnosis of impaction of the hepatic duct cannot be made. It is an extremely rare lesion, in my experience. Gall-stones in the hepatic duct have almost always retreated there after escape from the cystic duct. When, for instance, a stone is impacted in the common duct below the opening of the cystic, the common duct and the hepatic duct become dilated, and additional stones may then be forced from the gall-bladder through the cystic duct into the hepatic,—or many stones may thus be forced. The diagnosis of stones here, however, as I have just said, cannot be made except at operation. I have removed a stone impacted in the hepatic duct, and I have removed many stones from a dilated hepatic duct which were not impacted. In one case all within reach were removed, and a hundred and fifty were subsequently discharged through the drainage-tube.

The diagnosis of chronic pancreatitis, as I have already said, cannot be made, even with probability before operation. It is an operative diagnosis. If chronic pancreatitis is an infection of the pancreas caused by the irritation of gall-stones, then whenever the diagnosis of gall-stones is made one must not be surprised to find an enlargement of the pancreas.

Indications for Operation.—It would perhaps be an easier task, and it would certainly be a briefer one, to say what the contraindications are to the removal of gall-stones after the diagnosis has been made. In my opinion gall-stones should be removed just as soon as they make their presence known,—just as soon as they begin to offend. Assuming as true what I believe to be proved,—that in the great majority of cases gall-stones are formed in the gall-bladder,—the best time and the safest time for their removal is when they are

all confined to the gall-bladder. A review of the pathological conditions in gall-stone lesions, and a candid presentation of the causes of death after operation, are so convincing that reasons against surgical intervention in the earliest stages seem hardly worthy of mention. When gall-stones are in an unaffected gall-bladder, they are separated from easy removal only by the thickness of the abdominal wall. The gall-bladder is soft, distensible, large, and accessible. It has no adhesions. If necessary, it can be removed almost as easily as the loose vermiform appendix. The moment infection is begun, the gall-bladder is changed: it becomes adherent; that adherence becomes in time firm. The gall-bladder becomes thickened; it gradually contracts. Its walls cannot be easily manipulated: they are friable; stitches tear out. Moreover, the removal of gall-stones, in spite of everything, necessarily infects the field. Nevertheless, even from a gall-bladder thus changed and thus infected the removal of gall-stones is easy and safe as compared with the removal of stones from the cystic duct, the hepatic duct, or the common duct. The further along a stone goes, the more inaccessible it becomes, the more vital are the structures which it involves, the deeper must be the dissection, the longer the abdominal incision, the greater the soiling of the field. It is absurd to say that a stone can be removed even from the comparatively accessible cystic duct with as little risk as from the gall-bladder. It is the height of folly to maintain that choledochotomy is as easy and as safe an operation as cholecystotomy or cholecystectomy. Stones in the hepatic duct may retreat even beyond all possibility of their removal.

In reviewing the causes of death in the cases at the Massachusetts General Hospital and in my own cases, they have been, without exception, the result of delay. Fortunately, at the present time attention has been so repeatedly called to the importance of early operation that the ancient gall-stone case—with all that that adjective implies—has become as rare as the old adherent ovarian tumor or the gangrenous and perforated vermiform appendix with general peritonitis.

I agree most heartily with what has been said by Robson, that when gall-stones are removed in the beginning, when they are confined to the gall-bladder, there is practically no mortality. The mortality begins when the cases begin to show the later and severer lesions. When patients are jaundiced, when their powers of resistance are enfeebled, then the mortality begins to increase. The older the case, the greater the constitutional impairment, the more severe the local signs, the greater the mortality. It seems absurd that we are obliged at the present time to urge early operations in gall-stones. Some years ago, in Atlantic City, at a meeting of the American

Medical Association, I presented the following proposition, which I endeavored to prove: *That gall-stones should be removed as soon as they begin to offend, unless there are contra-indications in the patient's general condition or in the condition of other viscera.* That proposition met with general approval, although some men of great experience said that it was too radical a position to take. The truth of that proposition has been demonstrated since then; and the men of the largest experience in gall-bladder surgery in this country and in England advocate it. At the recent Congress of American Physicians and Surgeons at Washington that proposition met with no opposition whatsoever.

In gall-stones, then, the only indication for operation is the diagnosis of gall-stones. As soon as the diagnosis of gall-stones has been made, the gall-stones should be removed. This rule, like all other rules, has certain exceptions. When the patient's general condition is bad, when locally an operation will be attended by unusual risk, it may be well to use palliative measures until a time favorable enough for operation has arrived. Kehr recommends palliation in such cases, and sends the patients to Carlsbad.

Jaundice, though a strong indication for operation, may be also a contra-indication. If the patient has the jaundice of a biliary colic, a reasonable time—three or four weeks perhaps—should elapse before operation, in the hope that the stone causing the jaundice will make its way successfully into the duodenum, and that the removal of remaining stones may be accomplished in the period of comparative health.

The rule which I have made admits, as I have said, of certain exceptions. The exception, however, is when the patient's general condition is such that the operation is especially hazardous. When the gall-stones are presumably in the gall-bladder and are causing no other disturbance than disturbances to the gall-bladder itself, I should regard any serious constitutional or any local affection as sufficient contra-indication to operation. When the gall-stone symptoms are more severe and dangerous to the patient than the "other constitutional signs or affections of other viscera" the gall-stones should be removed, the best time being selected for operation, and the patient being treated medically as long as his local and general condition improve.

Take, for example, the demonstration of gall-stones in the gall-bladder during such an operation as an abdominal hysterectomy. When that operation has been an especially severe one that has taken perhaps half an hour to an hour, when it is clear that the patient has a heavy burden to bear in convalescing successfully from that operation, I regard the removal of gall-stones from the gall-bladder at that

time as entirely unjustifiable. I should, however, advise an operation for removal some months after a successful convalescence. On the other hand, if the hysterectomy is a brief one and bloodless, and if the patient's pulse is unimpaired, I remove the gall-stones at the same time, even if they have never caused any symptoms whatsoever. As in appendicitis, so in gall-stones, the question is not whether to remove them, but when.

The chief considerations in this paper are those relating to diagnosis and indications for operation. Operative methods are too technical for a general representative body. There would not, perhaps, be much to say on this subject even to a purely surgical association, for the methods thus far used have been carried, I think, to great mechanical perfection. My own methods have become gradually simplified until they are quick, safe and effectual.

The first point to be decided in connection with removing stones from the gall-bladder is that of retaining or of removing the gall-bladder itself. If the gall-bladder is to be removed, it is a good plan to perform the operation without opening it. If the gall-bladder is to be retained, its fluid contents should first be removed by aspiration.

Cholecystectomy is a very satisfactory and effectual operation. The chief objection to this operation, in my experience, is that drainage of the biliary passages is thereby prevented, unless the surgeon, after removing the gall-bladder, resorts to that very objectionable procedure, hepatic drainage. The gall-bladder must have had some function in the designs of nature. That function, apparently one of simple biliary storage, can be safely and permanently dispensed with, however, as numerous cases have already shown.

In comparing the end results of cholecystotomy and cholecystectomy, much time must elapse. My extirpations of the gall-bladder have been rapidly increasing in the past two or three years; and yet time is too short to justify positive deductions as to the lasting value of the operation.

I have always regarded drainage of bile through the wound of the greatest value in these operations. If gall-stones are formed upon micro-organisms, drainage of three or four weeks clears the field absolutely of these offending bodies, not only in the gall-bladder, but in the ducts and possibly in the pancreas.

The effect of this unobstructed drainage—this more than unobstructed drainage, for bile is sucked out of the liver by the weight of bile in the drainage-tube—is seen quickly in the marked changes that take place in the color and consistency of the bile. In the course of natural closure of the fistula—which requires usually two or three weeks—every biliary passage is thoroughly cleansed of all abnormal

material. When the patients are well, they are permanently well. I know of no more favorable reports in any class of abdominal operations than in that of cholecystotomy and drainage. The replies from patients to my inquiries have been of the most gratifying nature.

Cholecystotomy is a quick operation, and it is a safe one. It is perfectly simple, for it is applicable only when the gall-bladder is normal, distensible and easily accessible. The immediate results are almost invariably successful. Adhesions alone are likely to cause subsequent trouble; and by the method that I use, this sequel is very unusual.

When the gall-bladder is changed enough to make restoration to the normal doubtful, I remove it. The changes unlikely to be fully repaired are thickenings, infections and contractions. I remove the gall-bladder, too, whenever there is an impaction in the cystic duct. A single stone in the cystic duct justifies cholecystectomy. I have been obliged too many times to remove the gall-bladder by a second operation to take any chances at the first.

Cholecystectomy removes the gall-bladder and all its contents. Gall-stones are found in the gall-bladder so invariably that I do not regard the possibility of their formation in the hepatic or in the common duct as of any practical importance. Re-formation of gall-stones is extremely infrequent anywhere. My feeling is, without any positive proof, however, that a gall-bladder is always liable to produce gall-stones, even after drainage; and that the patient is much more likely to suffer a second time than if the gall-bladder has been entirely removed. The advantages of drainage must be given up after this operation; for, as I have said, the placing of a drainage-tube in the hepatic duct, is, in my opinion, except after a choledochotomy or incision into the hepatic duct, foolish and unjustifiable. It is often in itself an operation of great difficulty and of greatly increased risk; it imposes upon the patient a burden much harder to bear than that of the original cholecystotomy or cholecystectomy; moreover, it imposes this extra burden upon him for the very doubtful advantage of draining the hepatic radicles, which, in cases of simple gall-stones in the gall-bladder with free drainage of bile into the duodenum, are presumably in perfectly normal condition.

In the removal of gall-stones from the healthy gall-bladder, or the comparatively healthy gall-bladder, a short incision either through the outer border of the rectus or parallel with it is necessary. The gall-bladder, being unaffected, can easily be brought into full view, or even out of the abdominal wound. The incision should be long enough to permit digital examination of the region about the foramen of Winslow and the course of the common duct back of the duodenum and through the pancreas.

Even after the most painstaking digital examination of the whole field, a stone in the common, the hepatic, or the cystic duct may escape detection. The surgeon is unlikely, however, to overlook a stone in the cystic duct, because his attention will be called to the absence of biliary discharge in the course of his operation. Moreover, his attention will be called to the possibility of a stone in the cystic duct by changes in the appearances of the bile. If the gall-bladder contains fluid which is transparent or very light-colored, or which is very thick and dark-colored, the surgeon will consider the possibility of an obstruction in the cystic duct. One is not justified in assuming that there are no stones in the common or in the hepatic duct because of the absence of jaundice. As I have already said, a stone may be in the common duct for a long time without causing jaundice. Furthermore, if the impacted stone causes jaundice, that jaundice may disappear, the duct becoming sufficiently dilated to permit free escape of bile around the stone. Hence the false inference that the stone has escaped into the duodenum. I have successfully removed large numbers of stones from the gall-bladder by an operation of celerity and safety, only to find, moving up and down in the hepatic duct, a single stone, the removal of which was an operation of the greatest difficulty and hazard,—proving, in fact, quickly fatal. If I had not removed the stone from the hepatic duct, however, I should have subjected the patient to an operation which could never have relieved her symptoms, for the stones in the gall-bladder were doing no harm whatever, the symptoms—those of repeated attacks of pain and jaundice—being entirely owing to the occasional impactions of the stone in the hepatic duct.

When one is satisfied that there are no stones in the ducts the gall-bladder should be aspirated and the fluids removed. Before aspiration, the field about the gall-bladder is protected by means of gauze. After the fluids have been removed from the gall-bladder, one can tell exactly about the number and situation of the stones. In some cases it is impossible to feel gall-stones in the gall-bladder until the fluid has been removed. I was surprised once to find some hundred gall-stones in the gall-bladder in which not a single stone could be felt before removal of the bile.

The fundus of the gall-bladder is next incised, and the stones removed. In removing the stones I use a scoop which was devised by Dr. Jones, one of my assistants. By means of this instrument stones are quickly and safely removed. The opening in the fundus should be large enough to admit the finger; for the scoop may fail to detect a single remaining stone,—the finger never.

A drainage-tube about the size of the forefinger is then tied into the gall-bladder by means of a silk suture, the ends of which are left long.

A single strand of gauze, wrapped in rubber pellicle—which we call a cigarette drain—is passed down to the foramen of Winslow. The rest of the wound is tightly closed by through and through interrupted sutures, re-inforced with interrupted buried sutures of silk.

In cholecystectomy, having demonstrated the necessity for operation and the seat of the stones, the first thing to do is to provide for grasping the gall-bladder. This may be done with long haemostatic forceps or other grasping forceps which are not too powerful. Strong grasping instruments are likely to cut through gall-bladders suitable for cholecystectomy, for they are generally friable. If the fundus permits, it may be seized with the fingers, between gauze, which prevents slipping; or it may be secured by means of tape in a clove hitch. It aids very much to have a sure grasp by means of which the gall-bladder may be pulled in any direction, or rotated. The next step consists in separating the gall-bladder from the under surface of the liver. In doing this one should go close to the gall-bladder, if necessary leaving the outer layer of the gall-bladder in contact with the liver. If the dissection is made through liver substance there will be much oozing,—sometimes hard to control. As the operation approaches the cystic duct, the arteries and veins should be successively tied. They will come into prominence, and may be easily seen. Just before reaching the cystic duct, the gall-bladder in many instances presents a pouch, a sacculation, which generally contains one or more gall-stones. The pouch is usually toward the duodenum. It can easily be separated. That is best done with scissors or with a knife, if the operator can see exactly what he is doing. This part of the dissection must be made with the greatest care, and with absolute knowledge of every structure cut. If this care is not taken, the surgeon may go directly into the portal vein, or even into the inferior cava. The depths of the gall-bladder having been separated, the cystic duct comes into view, and is easily separated with the fingers or with blunt instruments to a sufficient depth. One must be careful when he ties the cystic duct that he does not pull the common duct and the hepatic duct out enough to be caught with the ligature. The ligated duct is then divided by means of the actual cautery. The cigarette drain is placed in contact with the stump of the cystic duct.

In my various cholecystectomies I have occasionally observed, after ligation of the cystic duct, a free discharge of bile. This discharge has lasted a day or two; it has not been abundant; it has quickly diminished. This always has been to me a rather inexplicable phenomenon. The duct must have given way—there is no other explanation for it. It does no harm, however. The patient makes a rapid convalescence, and the wound is solid.

Operations upon the common duct and upon the hepatic duct require a long incision. In many cases extensive adhesions have to be separated, for often the infections have been numerous, and the normal anatomy is much obscured. As a rule, one is unable even to feel the foramen of Winslow. The presence of a gall-stone is detected with difficulty. Adhesions are separated usually with ease. Care must be taken not to wound the duodenum, the pylorus, or the colon. One should go straight for the bodies of the lumbar vertebræ on the right side, for there is the area to be dissected. Dissections must be extremely careful, for the parts are so changed that it is often impossible to tell what is vein, what is intestine, and what is duct. Nothing should be cut until the surgeon is sure as to its nature. He generally will be able to get the stone between the thumb and the forefinger of the left hand. Then, by carefully exposing the tissues over the stone, he will, after sufficient experience, be able to tell what is duct and what is not. The danger is that he will have, between his knife and the stone, the edge of the portal vein, which the pressure of the thumb and finger has emptied temporarily of its blood, so that its venous look is lost. Before cutting, one should let up, then, with the fingers, to allow the portal vein, if it has been grasped, to fill and to come into prominence. No matter how careful a man may be in his dissection, the moment of cutting into the duct is always an exciting one. There are doubtless many instances in which the surgeon, instead of getting a burst of pent-up bile, will find the depths of his field flooded with blood; and he must get out of this fearful difficulty the best way he can. He is usually contented to give up all idea of accomplishing his operation, and is thankful if he can get the patient to bed alive; and yet this is an operation which is recommended by Kehr as a routine procedure after cholecystectomy, except that the hepatic duct is drained instead of the common.

The stone having been removed, the duct must be searched above and below with suitable instruments. In the very beginning I used in such cases as this hepatic drainage. I passed through the opening in the common duct as large a tube as the hepatic duct would admit. This tube I fastened in by means of a single suture through the walls of the duct. In a few cases I have closed immediately the common duct, and have drained through the gall-bladder and the cystic duct. Many years ago—in fact, in the early papers which I wrote—I advocated leaving the common duct open, saying that it would close just as the urethra closed in perineal section. The truth of this assertion has been repeatedly demonstrated.

When the pancreas is enlarged, even if the appearances are strongly suggestive of cancer, one must not be discouraged, but must employ drainage. This can be done sufficiently well through the gall-bladder,

The rarer conditions of the biliary passages which require surgical treatment, I do not intend to discuss. I have never yet seen a case requiring cholecystenterostomy. Operations upon the ducts through the duodenum, as suggested by McBurney, have a very limited application. Other conditions must be met with as they arise. The scope of the present paper does not include the consideration of them.

The prognosis in diseases of the biliary passages is sufficiently well established to be spoken of with some positiveness. The accumulated evidence of the past ten or fifteen years enables us to predict almost with scientific accuracy the course of diseases of the biliary passages when treated surgically. When treated medically, the course of these diseases is, as it always has been, mere guesswork. If a patient has an attack of biliary colic, one can guess that she will never have another, or he can guess that the next one will result in a solid impaction in the common duct with permanent jaundice. Unrelieved by surgery, this lesion will result, in the course of months or years, in death from cholæmia or from the clumsy and unsuccessful efforts at natural expulsion. The only hope of cure is from spontaneous escape of the stone,—which means ulceration into the duodenum or into the large intestine after being months or years in close proximity with vital structures, ulceration into which may be immediately fatal. If the case is treated surgically, after the diagnosis of gall-stones has been made and before the almost inevitable impaction has taken place, it can be predicted with the greatest confidence, first, that the patient will recover from the operation; and secondly, that there will be no recurrence of the symptoms; and finally that there will be no annoying sequelæ. If the case is not treated until after impaction has taken place, it can be stated with almost equal positiveness that four cases out of five will recover; one in five will die. In the four that recover there will be a slightly increased risk of uncomfortable or even of dangerous sequelæ.

Diseases of the biliary passages present one of the most brilliant fields for modern surgery. The sufferings and dangers are incalculable. We see but a small proportion of the patients affected with this disease; and in those whom we do see we fail in many cases to recognize the lesion. The more we study the diseases of the biliary passages, the larger the number of cases that we find; the more we see of the medical treatment, the less confidence we have in it; the more we see of the surgical treatment, the greater confidence we have in it.

The analogy between the surgery of the gall-bladder and the surgery of the vermiform appendix is striking in many particulars; but in none is it more striking than in the brilliancy of the results. Operations upon the diseased appendix have become so frequent that

our knowledge of that organ is, it seems to me, well-nigh perfect. The operation of appendectomy is very safe. I have now had more than six hundred and fifty consecutive recoveries after appendectomy in the interval of health. So it is in infections of the gall-bladder. From a mortality of twenty, thirty, or even fifty per cent. in certain diseases of the biliary passages—in the old, severe and complicated cases—we have come to practically no mortality after operation performed at the most favorable time upon patients in the most favorable condition.

The chief line of improvement to be suggested is in the early recognition of gall-stones, and perhaps in some technical details of operation. It seems to me that operations in the most favorable period have been perfected as much as they can be; and yet I have no doubt that many improvements will be made in the methods of the removal of gall-stones. In the old, severe, complicated cases much remains to be learned, not only as to the diagnosis, but as to the operative technique. Diseases which at certain stages have a mortality of from twenty to fifty per cent. after operation, surely present an opportunity for improvement in treatment. We surgeons maintain that the improvement in such cases is a matter of prevention, rather than a matter of operation. If the physicians will give us the cases at a time when the operation will be rapid, safe and effectual, we will then, in practically every instance, return to them the patient cured. If the physicians allow the patient to wait until his constitution is weakened, until other organs are involved, until the operation is difficult, tedious and dangerous, they cannot expect the low mortality and the brilliant results seen in the early stages of the disease. In the meantime, the surgeons themselves should employ their great opportunities for studying the relations between cause and effect. In all abdominal explorations which permit, the condition of the biliary passages should be ascertained as accurately as possible; and these observations should be recorded. The attending physician, who is usually present at the operation, should have his attention called to the lesions found, and he should be asked to observe all symptoms which could possibly be accounted for by the biliary conditions demonstrated at operation.

If these recommendations are carried out, I believe that in the near future we shall be able to make a diagnosis in the early stages of gall-stone disease with an almost scientific accuracy. The removal of the stones at this early period will almost invariably prove immediately and permanently successful.

DISCUSSION.

Dr. Daniel: I would like to ask Dr. Richardson if he ever had a biliary fistula remaining after operation.

Dr. Chisholm: My experience in hepatic surgery has not been a happy one. In one case, a woman, who refused operation, her physician gave her ether and turpentine, and the symptoms disappeared. In another patient, who died, at autopsy found a stricture of the common duct.

Dr. Atherton: In one case of mine there was no pain or symptoms pointing to gall-stones till patient became jaundiced and troubled by itching. At operation found stone in common duct and recovery ensued. Another case died from haemorrhage. Chloride of calcium, which is recommended by some, I have never used.

Dr. J. E. March: I have been much pleased with Richardson's paper. The first case I operated on died. Three other cases operated on recovered. I am keenly interested in this subject.

Dr. T. J. F. Murphy: The case I operated on—as read—was performed a year ago. If at the present time, I would have done a cholecystectomy.

Dr. Richardson: Removal of gall-bladder is more dangerous and bloody. I have one man with a fistula who has had it for fifteen years and likes it. In stricture of the cystic duct, I generally remove the gall-bladder. I do not care about chloride of calcium. I had one man who bled to death in a case of biliary fistula.

Dr. Daniel: I wish to move a vote of thanks to Dr. Richardson for his valuable paper.

Dr. March: I have much pleasure in seconding the motion. (This was put and carried.)

Dr. T. Walker: I move that Dr. Richardson be made an honorary member of the Maritime Medical Association.

Dr. G. M. Campbell: I second the motion. (This was carried and the President then welcomed Dr. Richardson as a member of the Association.)

Dr. Richardson: I wish to thank the members heartily for the honor conferred on me.



PRESIDENT'S ADDRESS—CANADIAN MEDICAL ASSOCIATION.*

By W. H. MOORHOUSE, M.D., London, Ont.

Gentlemen of the Canadian Medical Association:

I desire to convey to you my very high appreciation of the honor conferred by you in electing me to the highest position within the gift of this Association. I hope to prove worthy of your confidence, and that your time at this meeting may be spent both pleasantly and profitably.

On behalf of the medical fraternity of London and vicinity, I extend you a most hearty welcome. Also on behalf of this Association and city, I extend fraternal greetings to those of our fraternity who come from abroad, as delegates and visitors.

Truly, this is the age of associations. No matter what the calling may be, we are sure to find a union or association connected with it. People have learned the truth of the adage, "In unity there is strength." Social progress during the past thirty years has been most marked. All along the line we see the word *progression* in large and vivid characters. By these unions or associations the status of society at large is raised. The chief elements, or the main essentials, of an association are (1) the ethical side, by which its members are united and harmony promoted among them, through the settling of internal differences, by stating more clearly our duty toward each other; (2) the scientific side, by which a higher state of efficiency pertaining to the craft or profession is attained; (3) to resist aggression from outside sources. These advantages apply equally as well to medical societies as to any other form of society. The medical society or association gives each member of the profession an opportunity of meeting his fellow practitioner from throughout the length and breadth of the land. They hear the papers and debates on the various subjects of interest, medical and surgical, in which are detailed the failures and the triumphs over disease. A single paper or discussion may suggest to the mind of the hearer a train of thought leading up to untold benefit to himself and those under his care. It gives him renewed and increased enthusiasm without which we are unable to work successfully or comfortably. The minds of men are not all of the same cast, hence we find all the sides and shades of a question taken up and inspected critically in all their varying aspects. Failures as well as successes are recorded and discussed. The confession of mistakes and failures, while it requires a great deal of moral courage, is a means of imparting great information of a profitable character. The most brilliant and astute observers, the most successful practitioners, have all made

*Delivered at 36th annual meeting at London, Ont., August 25th, 1903.

mistakes and dismal failures, the recital of which serves to encourage the more timid by showing that the leading men do not live and work on a higher plane than the ordinary observer, that these men have their perplexities and trials to overcome, all of which affords so much instruction and encouragement to those who are diffident and less courageous, pointing out that "genius consists (chiefly) in an infinite capacity for taking pains." Hints of a valuable character are frequently dropped in discussion, even from the most humble, which may take root and bear fruit in the minds of the most erudite.

The beneficial results of these meetings are not confined to science. The ethical and social side is quite as important. Medical men are inclined to live within themselves or within certain rings or circles to the exclusion of their neighbors. At the medical association all barriers are, or should be, broken down. The hatchet of professional strife should be laid aside and the brethren dwell together in peace and learn to know each other, to know that our confreres are not the professional cut-throats and free lances we had imagined, to know they belong to a profession whose members are united in the bonds of fellowship, laboring with enthusiasm at the greatest of all sciences, viz., the alleviation of human suffering and the conquering of disease.

THE ANCESTRY OF OUR PROFESSION.

The domain of science and literature has been aptly likened to a republic, wherein all its votaries are regarded as being upon an equality. It makes its own laws, each member having an equal right with his fellow. Truly, there is no royal road to learning. All must keep the same weary vigils, and pass through the same exacting ordeals. As scientists, we owe no allegiance to any nationality, kindred, race or tongue. We all tread the same broad platform, each contributing his quota to the general fund of knowledge. Each generation has handed down its experience which has been verified and perfected by following generations. Thus the general fund of knowledge has grown, gradually becoming more and more defined, facts being weighed, and great truths established.

Let us look for a moment at the origin or early history of our own beloved profession, in other words, "our ancestry." Melchisedek, king of Salem, whose name signifies "King of Righteousness," who brought forth bread and wine and blessed Abraham, was both king, priest, and physician. He is regarded as the great prototype of Christ the God-man, who went about preaching, healing the sick, and raising the dead. In Melchisedek, as was usual in Egypt and India, we find a combination of the priesthood and physician—a noble ancestry!—our profession has, as we have seen, both a royal and priestly origin.

In Hellenic history the first allusion to medicine of an authentic character is found in the Homeric poems, which were written sometime about 1050 B.C. In allusions there made, it is clear that medicine had already a history. We find a distinct and organized profession,

with rules and regulations as to the treatment of injuries, which must have taken many ages to formulate, also we meet with terms in nomenclature which long after were used by Hippocrates. The Homeric heroes themselves are represented as having considerable skill in surgery, and able to attend to ordinary wounds and injuries. But there appears to have been a professional class represented by Machaon and Podalirius, the two sons of Asclepius, who are treated with great respect. It would appear, too, from the *Æthiopis* of Archinus, that the duties of these two were not precisely the same. Machaon's task was more especially to heal injuries, while Podalirius had received from his father the gift "of recognizing what was not visible to the eye, and tending what could not be healed." Here we have the first indication of the separation of medicine and surgery, Asclepius, or Esculapius, appears in Homer as a Thessalian king, not as a god, although in later years divine honors were paid him and he was worshipped as a god.

From this it appears that the origin of our profession, both in profane and in sacred history, has a most noble ancestry, being both royal and sacred in character, dating from time immemorial. Seeing, then, the very high position which our profession occupied in the past, and the very important, nay, essential part it plays in the welfare of civilized nations in the present age, how necessary is it that its members be men of culture. In the early pioneer life of this continent, especially the newer settlements, the chief struggle consisted in providing homes and other necessities of life. Few and far between were the luxuries, as the struggle for existence was keen. The more provident had an eye toward laying up a fund for a time of need. The earlier generations were brought up in the stern lap of necessity. Books were scarce and difficult to obtain. Teachers, beyond those having a mere rudimentary education, were not easy of access, yet under these discouraging circumstances we find men of prominence in our profession, for some are born to be great. As time went on and wealth increased, schools of a more advanced character were established. Our educational system has been founded upon a broad and liberal basis, so that we now boast of having one of the most admirable systems of education, from the common schools up to our universities. With our admirable educational facilities, which are now within the easy reach of all who are ambitious to excel, what excuse have we for a low standard for our matriculation in medicine? Our profession has always been regarded as one of the learned professions, whose members are, or should be, cultured gentlemen. The poet Ovid tells us, "*Ingenuas didicisse fideliter artes emollit mores*"—(to have faithfully studied ingenuous arts softens manners.) I am well aware that culture does not depend entirely upon mental training. A great deal is due to the innate character of the individual, then the early environment shapes and moulds the mental tendency or temperament, exaggerating or repressing, as the case may be.

In no walk of life does the inner life of the individual shine out so brightly, unless it be that of our sister profession, the clergy. In no profession is the highly cultured man more truly honored, neither is any class of society more powerful for good than the cultured, polished physician. Emerson says that "a gentleman is a man of truth, lord of his own actions and expressing that lordship in his behaviour." In no way can this high ideal be so readily and effectually obtained as in the words of Ovid—"To have faithfully studied ingenuous arts softens manners."

Our country, although vast in extent, has not, until lately, attracted the attention of the better class of emigrants and settlers to the extent its importance demanded. Our great agricultural and mineral wealth has only recently been properly and fairly ascertained and placed before the world. We are now on the eve of a great and continued prosperity.

One of the great essentials to success or prosperity of any kind is for those concerned to have faith in themselves and their cause, whether it be our country, our profession, or a more elevated plane of life in general. A tone of intense optimism prevails, betokening that confidence and faith which ensures our prosperity. With increased wealth comes greater leisure, which leads to a higher culture, a higher plane of thought.

Let us, as a profession, be alive to our needs and establish a high ideal, and endeavor to live up to it. Although we may not be able at once to attain this high standard, yet it should ever be before us, stimulating to further efforts. We should encourage our students to be thorough and well grounded in their preliminary training. A great deal can be done by our medical associations in advocating the higher education of students in medicine. You can strengthen the hands of those who have in charge the matriculation and medical curricula. I do not intend to say that a high standard of education will make every man great and brilliant. Some will be great and brilliant in defiance of all the defects of our curriculum. If there be inherent greatness in spite of disadvantages, how much greater eminence may such men be enabled to attain under superior advantages?

DOMINION REGISTRATION.

A uniform standard of medical education throughout the Dominion is much to be desired, and the advantages derived therefrom are many. Our country is vast, and many sections are being rapidly populated. We had all hoped that we were within reach of a solution of the vexed problem of Dominion Registration. All the Provinces, even the Province of Quebec, appeared satisfied with the provisions of the Bill when passed.

You will remember that the original draft of the Bill contained the clause, "when five or more provinces consent." This clause was

obnoxious to the Dominion Government, and it compelled those in charge of the Bill to change it to "all the provinces must consent" before the work can be begun. This action of the Government, which we now know was done to placate Quebec, was particularly unfortunate, as it was the means of wrecking Dominion Registration for the present.

Five provinces, viz., Nova Scotia, New Brunswick, Prince Edward Island, Manitoba and the North-West Territories, have passed the necessary legislation—to the effect that any one possessing the license of the Dominion Medical Council may enter any of these provinces and practice his profession on the payment of the registration fee of the province. The North-West Territories enacted, in addition, that *this qualification alone would admit to practice there*. The Province of Ontario has not, as yet, endorsed the Bill. The Premier, Mr. Ross, has expressed himself as being very strongly favorable, and volunteered to take charge of it himself, but there is no doubt that his unstable tenure of office, and the very grave charges brought against some members of his cabinet, were the chief causes of its being left over, through pressure of weightier matters.

British Columbia, also, is in a very unsettled state politically, the legislature being unable to get through its legitimate business. Those in favor of Dominion Registration who have watched the trend of public sentiment in these two provinces, feel assured that, as soon as the political atmosphere becomes cleared, they will express their approval of the Act by adopting it. Quebec is the one great obstacle, the legislature having rejected it by a large majority, but I am proud to say that the English members voted solidly for it.

The New Brunswick Legislature, in their Bill accepting the provisions of the Act, recommended that the Dominion Government be urged to permit the provinces, asking for the Dominion Act, to go on, and allow the other provinces to follow, just as in the same way that confederation was brought about, by the four provinces, Ontario, Quebec, Nova Scotia and New Brunswick, accepting the Confederation Act—Prince Edward Island and British Columbia, with later Manitoba and the North-West Territories, coming in when convinced it was a good thing.

Since the defeat in the Quebec house, Dr. Roddick, who had charge of the Bill, has been endeavoring to induce the Dominion Government to allow him to bring in an amendment to the Act on lines similar to the original draft, whereby five or more provinces, which is a majority of the total number of provinces, being ready to accept the Act, the Dominion Council may be formed and put into operation. So far, he has not succeeded, the answer being that Quebec is certain to come in.

Now, present indications show that Quebec has no intention of accepting the Act as it stands at present, unless amendments of a most damaging character are made to suit this province only, and which will render it entirely unacceptable to the other provinces.

The solution to the difficulty, as it now stands, is for the other provinces, if they want Dominion Registration, to rise in their might and insist upon an amendment such as Dr. Roddick has urged upon the Dominion Government. Should the Province of Quebec desire to continue as at present, for certain selfish reasons, and adopt "the dog in the manger" policy, is it just that the other provinces be kept out of their rights?

MEDICAL LITERATURE.

During the past decade, literature has made considerable advancement in our Dominion. With increasing wealth we have an increasing appreciation of the fine arts and all forms of culture. Literature has not lagged behind the sister arts. Our daily papers are equal to those produced in any country. Our weekly and monthly periodicals, both in medicine and general literature, are rapidly improving. Literary aspirations have been growing and bearing fruit in the form of many delightful books.

It is true our literature has not yet assumed a type peculiarly our own, but has taken the tone and characteristics of our great Motherland. This, in a great measure, is to be accounted for by the abundance and cheapness of all kinds of literature brought from other countries, which has, to a great extent, smothered out our native talent, while the struggle for existence in a new and growing country has been too great to allow of time and energies being spent along this line. Now that general literature is making such advances, I feel constrained to express a fervent hope that medical literature may make an equally good showing in our country in the near future, and trust some of our men may enter the fields of medical authorship.

The hospital equipment throughout the Dominion is rapidly improving and being put on a most excellent footing. Our larger cities, with their well-equipped hospitals, should be in a position to give our men a thorough post-graduate course.

PATENT MEDICINES AND PROPRIETARY PREPARATIONS.

I am anxious to call your attention to the patent medicine craze, and the great danger therein to the unsuspecting public. It has been estimated by most reputable authority that more than \$60,000,000 are annually expended in this manner alone. One can scarcely grasp, at first thought, the true situation, nor its gravity. The evils are many and of a serious character. Certainly not the least is the alcohol habit, which, insidiously insinuating itself under the apparently harmless form of a simple medicine, is stalking in our midst like a midnight pestilence. Many of these preparations consist largely of alcohol; from 10 per cent. to 60 per cent. Various narcotics also figure largely in their composition, such as opium, morphia, codeia, cocaine, belladonna, hyoscyamus, chloral, bromides, etc., etc. These manufacturers publish glowing accounts as to the wonderful manner in which their nostrums were discovered, with a number of laudatory testi-

monials, many of them fictitious, some, I am sorry to say, being from prominent citizens, such as clergymen, detailing the wonderful curative properties of these mixtures, the nature of the contents of which they are utterly ignorant. These circulars and papers are strewn broadcast throughout the land. The credulity of people in this respect is great; neither is this extreme credulity confined to the less educated class. The more ignorant and mysterious the source of the medicine, the more marvellous the testimonial and unworthy of belief, so much the greater is the confidence. Nostrum after nostrum is resorted to in vain effort for relief before consulting a proper medical adviser, losing much valuable time in allowing the disease to make greater progress; then add to all this the irreparable harm often done by the use of medicine contraindicated. Evil habits are frequently contracted, leading up to confirmed inebriety, also to morphinism, etc.

Many of these preparations are used in secret, the so-called secret preparations which are so largely advertised in the public press, suggesting evil thoughts and provoking curiosity in the minds of our youth, often leading to contamination. There is another class of preparations, in the form of stimulating tonics, made and sold by reputable pharmacists, which is frequently the cause of much mischief, particularly where they are self-prescribed, which is so often the case. I allude to such preparations as wine of beef and iron, coca wine, etc. These and similar preparations are frequently prescribed by people of apparently strong temperance principles who would hesitate to use or recommend the ordinary alcoholic preparations. Those who suffer most from the use of these latter preparations are delicate neurotics who are attracted partly by the high sounding names, which convey to their minds the idea that this is, indeed, the very thing which they require, and partly because it is pleasant to the taste and of a stimulating nature, giving them a feeling of temporary relief from their depression. After a time it becomes almost a necessity, leading frequently to the use of stronger preparations, ending in inebriety.

Cannot something be done to shield the public from this great evil? Shall we, the members of this enlightened profession, who see this monster, with its many-sided evils, daily flaunted before us, having its bold, indecent advertisements in our public press, pervading even our religious journals, thereby giving an apparent sanction, and clothing these nostrums with an air of responsibility; we who daily meet in our professional rounds melancholy examples of this terrible delusion—I say, shall we not raise our voices in loud protest against it? Can we not, unitedly, in some way, arouse public sentiment so that in some measure, at least, this evil may be rectified?

There is a law in France by which all makers of patent medicines are obliged to put the formula, both qualitative and quantitative, upon the package. Should there be any suspicion of fraud, officers are instructed to obtain samples from the dealers or vendors. Upon the suspicion being verified by analysis, the officers are empowered to

prohibit further manufacture and sale. Our profession, which has done so much in the form of preventive medicine, so much for the advancement of the public health in the past, should not stop short while such important work remains to be done.

THE PRACTITIONER'S DUTY TO HIMSELF.

A great deal has been said about the duty of the physician to his patient. I presume we are all quite familiar with this part of our duty. But there is another phase of the physician's duty, about which very little has been said. I allude to the duty of the physician to himself. The life of the general practitioner is a most arduous one; even the ordinary holidays, and that most beneficent gift to man, viz., the seventh day's rest, are practically denied him. As a result he is constantly in harness. This, coupled with the great anxieties of his profession which so largely consists in dealing with that most uncertain of all things, viz., life, health and human nature, keeps him almost constantly in an auxious condition. Through time, if doing a large amount of work, and having ambition and pride in his profession, wishing to excel, it begins to wear upon him, his vitality becomes lowered, and he gets to be neurasthenic, being both mentally and physically below par, which seriously lessens his capacity for work, and impairing its effectiveness through impatience and irritability. Who is there among us that cannot recall many times in his professional life when he has been unequal to the occasion through some mental infirmity? Now, these mental infirmities are largely the result of overwork, along with the perplexities and anxieties with which we are so constantly beset. Many of the brightest ornaments of our profession die early, or are laid aside from work as a result of this terrible strain. The profession, no doubt, is much overcrowded. The old adage, "There is room at the top," has been overdone. Many good and brilliant men perish in the ascent, and when the top is reached the strain is often too great to retain the position. In order to overcome the effects of this great strain, complete relaxation is necessary, such as is obtained in an occasional holiday, with change of scene. It is also well to cultivate some particular hobby, as long as it does not entail too great a drain upon the pocket. The perusal of literature other than medical subjects, attendance upon concerts, lectures, the opera, are all useful in bringing into use another set of faculties or brain cells which unfortunately are too often allowed to lie dormant by the average medical man. A prolonged rest, however, with change of scene, is, without doubt, the best treatment for the broken-down neurasthenic medical man. Some years ago I came across an able article on the subject, wherein the writer made the assertion that the busy practitioner should have every seventh year entirely free from professional work, in order to compensate for the prolonged strain and the loss of the seventh day's rest. In fact, let

us be wise, and prescribe for ourselves just in the same manner we would for our patients.

Medical men, as a rule, do not follow strict business methods in their financial affairs. The chief reasons for this grave and serious irregularity in business methods are: (1.) the irregular life they are obliged to lead, especially in severe epidemics and unhealthy seasons. Long drives and unhealthy hours soon upset method and order, and the accounts soon assume a state of chaos. Finally his affairs get into a state of inextricable confusion, the unfortunate medico being driven into despair and obliged to make a settlement with his patients, often considerably under the proper value through the want of a proper statement to guide him. I have known a physician to pass an entire week without even taking a note or making an entry of his daily work. (2.) Many are too sensitive to send out their accounts regularly, and are too modest to claim a proper honorarium, or, it may be, they are too dilatory in this work to do so in a regular manner. Why should the medical man who has gone to great expense and labor, sacrificing his time for years, while securing his professional training, hesitate to claim a fair honorarium? No class of the community is called upon to make greater sacrifice of time and comfort, or who so readily and conscientiously respond to calls of distress, or so abundant in deeds of charity. Then what should he fear in claiming a fair pecuniary reward, or why should he defer the day of reckoning?

The progressive physician will be ever on the alert to provide himself with the latest devices to save time and labor, so as to allow all the freedom and relaxation consistent with the demands of the profession. The minor affairs of professional life are apt to be thought too insignificant to occupy the attention of such an assembly as this learned body, yet we must remember that life is made up of a series of details, each important in itself. We cannot always live in the clouds or upper strata of science, but must descend from time to time to the more homely affairs of life, in order to refresh and invigorate ourselves for the higher plane of thought. I have endeavored to confine my remarks to some of the more commonplace subjects which interest all alike, leaving the scientific side of our professional needs for your admirable papers and discussions.

PURE ATMOSPHERIC AIR A NECESSITY FOR THE WELL-BEING OF MAN.*

By W. BAYARD, M. D., (Edin.), LL D., St John, N. B.

GENTLEMEN:—Lord Beaconsfield once said that “The Atmosphere in which we live has more to do with human happiness than all the accidents of fortune, and all the Acts of Government.”

When His Lordship made this remark he may have had in his mind the unfortunate asthmatic, or a young lady after a fast dance in a crowded ball-room, seeking an open window. But no reasoning mind in the present day will deny the benefit, nay, the imperative necessity for pure air in our homes, in our public places, in our hospitals, and in their environs.

Professor Parkes declares that “Air is the prime supporter of life. Health, even life itself is dependent upon its purity.” He also says “Statistical inquiries on mortality prove beyond a doubt, the causes of death which are usually in action, impurity of air is the most important.”

It may be asked what constitutes pure atmospheric air? It has the following volumetric composition:—Oxygen 20.91 per cent, Nitrogen 76.95, Argon 1.00, Carbonic acid 0.04, Aqueous vapour variable, with traces of organic matter.

The three gases oxygen, nitrogen, and carbonic acid, which compose the bulk of the air, are uniform in quantity the world over. The atmosphere of large cities is vitiated and polluted by debris of all kinds. A wise provision of Nature meets this difficulty, by the winds which dilute it with fresh air, the rain which washes it, the chemical effects of its oxygen and ozone upon the oxidizable matters in it, and the power possessed by plants in sunlight of absorbing the carbonic acid, fixing the carbon, and setting free the oxygen.

It may be vitiated by respiration of man and animals; by combustion of coal, gas, oil, etc.; by fermentation and putrefaction of animal and vegetable organic matter and by various trade and manufacturing processes.

VITIATED BY RESPIRATION. An adult individual at rest breathes at the rate of from 17 to 20 respirations in a minute. At each respiration about 30 cubic inches of air pass in and out of his lungs. The air in the lungs loses between 4 and 5 per cent of its oxygen, which is absorbed by the blood in the pulmonary capillaries, and

* Read at meeting of Maritime Medical Association, St. John, N. B., July 1903.

gains between 4 and 5 per cent. of carbonic acid from the venous blood. The nitrogen is exhaled unchanged.

The composition of respired air is variable, but it may be taken as follows:—Oxygen 16.95 per cent, Nitrogen 79.00, Carbonic acid 4.04. It is raised in temperature to nearly that of blood 98.4° F., is saturated with aqueous vapor, and contains various organic substances. During hard work the carbonic acid given off is materially increased.

The organic matter given off from the skin and lungs varies with the individual and his state of health. It consists of vapor from the lungs, suspended matters from the mouth, and volatile fatty acids from the skin, which putrify very rapidly, and are often noticeable by smell, in the air of an inhabited room. The amount of watery vapor given off by the lungs and skin is about 550 grains per hour, enough to saturate 90 cubic feet of air at a temperature of 60° F.

Animal life is dependent upon the free oxygen as found in the air. Deprive the air of its oxygen and rapid and fatal asphyxia follows. An adult absorbs on an average about 2 pounds of oxygen in 24 hours, equivalent to 40 hogsheads of fresh air. Professor Parkes claims a man requires 2,000 cubic feet of air every hour: short of this it becomes poor and poisonous.

The amount of carbonic acid which is given off by a male adult at rest is about 0.72 cubic foot in an hour; this amount may be increased by hard exertion to one cubic foot and eight tenths. Inspired air should not contain more than 7 parts in 10,000 of carbonic acid gas.

The wonderful diffusion of gases is nature's mode of protecting us from the poisonous effect consequent upon their accumulation in the air, which is in incessant motion, at one time moving with the violence of a hurricane, at another, so slowly as to be detected only by the hazy dust that moves in the shadow pierced by a sunbeam.

VITIATED BY COMBUSTION. Bituminous coal when burnt in open fireplaces gives off nearly three times its weight of carbonic acid, with small quantities of other gases, soot and tarry matters. But these gases pass up the chimney at the rate of 8 or 10 feet per second, or more, according to the draught. The sulphuric acid given off in the air of towns may cause the rain to be acid, destroying vegetation and soft building stone.

In this connection I may mention to you that the very poisonous gas, carbon monoxide, given off from the imperfect combustion of the various kinds of coal, is agitating the public mind in London at present. Very many deaths having been caused by what is called "banking-up" the fire and preventing the free combustion of the coal, when this deadly gas is thrown off. One pound of bituminous

coal requires 240 cubic feet of air for its complete combustion. Let me impress the fact upon *all*. We have had deaths from ignorance of that danger in this town, and we seldom take up a London journal without finding cases recorded. As little as 0.4 per cent. of this gas in the air may cause death from asphyxia, the gas uniting with the haemoglobin of the red corpuscles of the blood and displacing the oxygen, so that the red corpuscles can no longer act as carriers of oxygen to the tissues, and failure of the chief nervous centres results. Being destitute of odour, and causing no irritation of the air-passages, it is inhaled by the victim unconsciously. Doubtless the rooms in which these sad accidents occurred were not ventilated. Had there been a proper diffusion of air in the room, the gas would have been so diluted as to be harmless, though it is very deadly.

The products of the combustion of illuminating gas and other lights are distributed through the air of the room in which they are burned, and increase the vitiation of the air already polluted by respiration. One foot of ordinary gas combines with the oxygen of from 5 to 8 cubic feet of air; producing when burnt, half a foot of carbonic acid. A common gas-burner consumes about 4 feet of gas per hour, and consequently furnishes about 2 feet of carbonic acid in that time. One foot of carbonic acid is produced by the combustion of 300 grains of oil in a lamp, and a like proportion for other lights except the electric light, which consumes no oxygen, and leaves no deleterious products polluting the air. It is computed that 1200 cubic feet of fresh air is required for one foot of gas consumed.

VITIATED BY DECOMPOSITION. The air from drains may so pollute the atmosphere as to predispose those inhaling it to various diseases, as puerperal fever, septicæmia, erysipelas and hospital gangrene. It is a disputed point whether enteric fever can be caused by the inhalation of sewer air, though recent observations point in that direction. The offensive emanations from such decomposition does not necessarily produce specific disease, though sickness and death have followed exposure to the effluvia, which could not be accounted for in any other way.

Vitiation of the air by INDUSTRIAL OCCUPATIONS is too large a subject to be discussed in a paper like this, but I may say that daily experience is teaching us the value of, nay, the absolute necessity for ventilation in all industrial establishments.

The researches of Dr. Ogle have shewn that of all the industrial classes, gardeners, farmers, agricultural laborers and fishermen are the healthiest and have the smallest death rate, because their occupations are carried on in the open air. Infant mortality is double in towns where ventilation and sunlight are wanting.

Professors Parkes and Kenwood tell us that "in the air of ill-

ventilated sick-rooms and hospital wards, the debris of dried epithelial scales and pus cells may often be found floating. These matters are especially frequent in wards where many of the patients have purulent discharges from suppurating wounds, or copious expectoration from the lungs, and are usually accompanied by an abundance of spores of fungi and bacteria. In many persons the breathing of such polluted air causes an immediate effect on the throat and tonsils, passing sometimes into acute tonsillitis or hospital sore throat. Its effect in increasing the severity of, and retarding recovery and convalescence from acute disease, is now generally recognized. Patients suffering from pyæmia, erysipelas, ophthalmia, septicaemia and hospital gangrene, are undoubtedly infectious to those who have open wounds. The contagious particles contained in dried epithelial scales and pus cells, may be transferred through the air from patient to patient, and often no measure short of emptying the ward appears to be of any avail to stop an epidemic once begun. In times not far distant, those diseases were, in the surgical wards of many hospitals, almost constantly present. Freer ventilation, improved sanitary arrangements, and the anti-septic treatment of wounds and injuries, have almost eradicated such calamities from modern hospital practice."

The lungs and the stomach require their individual nourishment ; the stomach makes known its wants by hunger, the lungs by oppressed breathing ; starve either, and ill-health is the result. The effect of starving the lungs of their oxygen is not so manifest to the ordinary individual as the deficiency of food, but it leaves its baneful effect nevertheless. Those who feed their lungs and necessarily their blood on air polluted by the exhalations from their own lungs, or that of others, can not be strong and healthy. The pale cheek, the lustreless eye, the white lips, the dull, heavy, stupid langour tell the tale. Living in such an atmosphere predisposes the individual to various diseases, and it is notorious that tuberculosis flourishes in it. The effect of impure air is more injurious to infants than adults, their respiration and circulation being more frequent.

It may be safely claimed that not one bed-room in ten has a proper renewal of fresh air. We build our houses with the view of making them as air-tight as bricks and mortar, and good carpentering can accomplish. The bed-room is too often the smallest room in the house, instead of the largest as it should be, because we are in it the greatest number of hours. If there is a window in it, it is double, a thing that should not be in any house without a proper system of ventilation. Imagine a husband and wife, and possible a child, sleeping in a room containing about 6 hogsheads of air, when to keep the air at a healthy standard, it should contain 50. Is there any wonder that they should complain of headache and lassitude when rising in the morning, until they can feed their lungs with fresh air.

A fond mother observes her growing daughter appearing at breakfast pale, languid and unable to eat. In her anxiety she seeks medical advice, and obtains everything for her but what nature demands, pure air at night. As a recent writer observes:—"Let her consider for a moment what is really done by re-breathing breathed air which has lost its oxygen, and has washed the impurities from the lungs twice or thrice, being used again and again for the same purpose. According to estimates frequently made, each person from his skin and lungs renders three and one half cubic feet of air impure every minute."

There is ample evidence to prove that in manufacturing England the class from which the British soldier and sailor is taken has been progressively deteriorating for the last decade. They have lost in height, in weight, in chest measurement, in muscular power, in general physique and are consequently oftener on the sick list. While among the continental powers those qualities are improving. Doubtless this is largely to be attributed to town life, where in England 77 per cent. of the entire population inhabit the towns; Germany 36, and France 25. It will not be disputed that the vitiated air breathed and re-breathed hourly in their homes is a large factor in the deterioration, and they have not the military outdoor training practiced on the continent of Europe.

With the foregoing facts in our minds, we must conclude that pure atmospheric air is an imperative necessity for the well-being of animal life. We must also conclude that the air in our homes, in our hospitals, indeed in all confined spaces where many are congregated, may become so vitiated by respiration and combustion as to cause disease and possibly death to those aggregated in such spaces.

While the air of an enclosed space can not be made so pure as that outside, it should be diluted by a renewal of fresh air when a number of persons are confined in a given space. Few of us but have observed the refreshing effect upon our breathing when leaving a crowded theatre or assembly room. We recognize the effect, ignorantly disregarding the cause.

How is this dilution and renewal of air to be accomplished? By a proper system of ventilation, a subject that has occupied the most astute minds for years.

At present there are two rival theories regarding it, the natural and the artificial. The natural taking advantage of the incessant motion of the air, the artificial requiring complicated machinery and fuel to accomplish its movement.

The temperature of the air when leaving the lungs is about equal to that of blood 98.4°, with the room at 70° F. Being lighter than the air of the room it must ascend, consequently it should be drawn off at the highest point.

The system inaugurated and practiced by Robert Boyle & Son, of London, England, should commend itself to every unprejudiced mind. It consists in drawing the vitiated air from the highest point of the room to and through their air pump, placed on the highest point of the roof of the building. They claim that there is not a moment day or night when the air moves at a less rate than from one to two cubic feet per second, and with a moderate wind, they have afforded ample proof that the air-pump has removed 5,000,000 cubic feet of air per hour, without creating a perceptible draught. They receive the air to replace that removed from the outside, through holes in various parts of the walls of each room.

When they wish to destroy the germs in the air of an infectious hospital, they draw it through an asbestos furnace, heated with gas and connected with the air pump ventilator.

The fresh air supply should be properly proportioned to the extraction.

The combined area of the inlets should be equal to that of the outlet shafts.

All pipes should be made of metal, and circular to prevent friction.

The fresh air should be admitted through the walls, at a low velocity, in an upward direction, through a number of small inlet tubes placed 5 or 6 feet above the floor, with caps on the inner ends to regulate the quantity and velocity of the incoming air.

As I have already said, the artificial system requires hourly attendance day and night, winter and summer, with fuel and complicated machinery, which is liable to break down at any moment. Its installation costs double that of the natural system. And the vitiated air must be forced out at the base, near the floor, to be re-inhaled during its passage. It is true the vitiated air may be taken from the highest point, by electric fans and radiators, but the same argument holds against the expense and break-down.

In the summer season windows may be used as ventilators, but in this country, in spring, autumn and winter, they are worse than useless.

Almost the same may be said of fire-place and chimney in these seasons. The chimney may be utilized when the fire is burning, or a gas-light up the chimney to rarify the air, otherwise the cold air will pass down, seeking the warmer air of the room.

Boyle's system of natural ventilation is recommended by the best scientists and architects in London, has been installed in every royal residence in Great Britain, and very many in Europe, 21 hospitals in London, and almost every public building in it that can be named, together with 100,000 residences in England, France and America.

With such an array of patronage, I feel safe in recommending the commissioners of our schools, and our hospital, to install it in their buildings.

DISCUSSION :

Dr. DeWitt : I would like to express feelings of thanks for the privilege of listening to Dr. Bayard's paper. Surely there must be pure air in the city of St. John, whose atmosphere produces men of four score and ten whose intellect never gets foggy. I have much pleasure in moving a vote of thanks to Dr. Bayard. (This was seconded and carried unanimously.)

Dr. Bayard : The best thanks I can receive is to know that some notice has been taken of the paper.



THE CONDITIONS WHICH SIMULATE APPENDICITIS.*

By MURDOCH CHISHOLM, M. D., C. M., L. R. C. P., (Lond.), Professor of Surgery and Clinical Surgery, Halifax Medical College.

No disease presents so many different aspects as appendicitis. Its forms are various, complex and complicating—a veritable proteus in its changing facies.

This peculiarity of appendicitis is due to certain anatomical and pathological facts. Chief among the former are changes in the position of the appendix. I have met with it in the left inguinal canal in doing an operation for the radical cure of hernia.

Any inflammation of the appendix in that position might easily simulate strangulated hernia, and conversely certain forms of strangulated hernia may simulate appendicitis.

The appendix may dip into the true pelvis, and hence inflammation of any of the pelvic organs may simulate appendicitis. It may lie behind the colon pointing upwards, and thus, when inflamed or suppurating, it may present symptoms common to certain inflammatory diseases of the kidney, ureters, gall-bladder and liver.

I have met with the appendix attached to the anterior abdominal wall, surrounded with inflammatory exudate and pus. And so abscess of the abdominal walls may simulate appendicitis.

Among the pathological factors which conduce to the protean manifestations of appendicitis, are changes in the calibre of the tube and changes in its walls from inflammatory action chiefly. All degrees of stricture of the appendix are seen as a result of inflammation. I have met with a case of complete obliteration with the exception of a short portion which was transformed into a cyst. The symptoms prominent in this case were frequent attacks of intestinal colic. In the earlier attacks there would be fever most likely, but in the later ones when I saw her, there was none. Intestinal colic, therefore, simulates appendicitis where, from any cause, the calibre of the tube is changed. A short mesentery, too, may bend or kink the appendix and cause symptoms of intestinal colic.

Under the head of changes in the walls of the tube may be grouped all degrees of inflammation, from slight congestion of the mucous membrane to ulceration and rupture.

There can be no doubt but the slightest forms of congestion and catarrhal inflammation produce symptoms which simulate intestinal colic, with this difference, that pressure aggravates the one and re-

*Discussion at meeting of Maritime Medical Association, St. John, July, 1903.

lieves the other, while the severer forms of inflammation with or without rupture produce a variety of symptoms which may simulate several different diseases.

One of the most common of the diseases thus simulated is intestinal obstruction.

Now the obstruction seen in appendicitis is generally milder in its character. The vomiting is not so violent, the distension of the abdomen not so marked, gurgling not present, the pain sometimes not so severe. The temperature varies from sub-normal to over a hundred. The symptoms will largely vary with the cause. General septic peritonitis will cause paralytic obstruction with symptoms of collapse. The bowels in such a case are quiescent. Rupture or transudation of sepsis with local peritonitis will cause paralytic obstruction limited to the seat of inflammation. The symptoms here may border on collapse, but will be intensified in proportion to the systematic reaction. Here the bowels above the seat of inflammation will act rather vigorously, giving rise to gurgling and borborygmus. I have an idea that we may have sympathetic obstruction in appendicitis. We meet with cases marked by intestinal torpor, in which the inflammation seems limited to the appendix. Then we have the obstruction resulting from old or new adhesions and bands of inflammatory exudate. The symptoms here will differ in nothing from ordinary intestinal obstruction.

Carcinoma of the ileocecal valve may simulate appendicitis. A case of this kind came under my care some years ago. He had symptoms of obstruction without fever, a tumour and some tenderness in the right inguinal region a little outside and about McBurney's point. A brother died of a similar affection, also another member of the family. I diagnosed intussusception of the ileum into the colon and gave a forced injection which relieved him, but did not remove the tumour entirely.

In a week's time he had another attack with fever. This time doubting my former diagnosis I called in Dr. Stewart, who pronounced it a plain case of appendicitis. The fever, the tenderness, the tumour, the constipation and vomiting seemed to admit of no other diagnosis, but the family history, the history of the attack and the relief from a large enema, left this diagnosis doubtful in my mind. Time confirmed my doubts, and when it was decided to operate, the symptoms of obstruction were clear and unmistakable. We found an intussusception of the ileum through a cancerous ileocecal valve.

Perihepatitis or inflammation in the neighbourhood of the liver or gall-bladder may simulate appendicitis. A case of this kind came under my notice last fall, or rather the converse of this. A young man was sent into the hospital for removal of the appendix, but all he complained of was pain in the right hypochondrium and

over right scapula. In the right inguinal region nothing very definite could be detected. On operation, however, the appendix was found diseased and removed. The patient left the hospital in three weeks, cured of his pain. This patient was sent to the hospital for removal of the appendix, though the pain in both attacks before coming in was referred to the angle of the scapula and the right hypochondrium. I regret that the history does not give the practitioner's name.

Dr. J. W. DANIEL : It might be thought that the last word had been said on the subject of appendicitis, and yet the other evening I read an article in the *British Medical Journal* by Dr. James McKenzie which, to my mind, explained several things which had formerly been obscure, and related especially to the nerve supply of the part and its effects. The sense of localization is absent from the viscera, and pain is referred, not to the actual seat of disease, but to an area on the periphery supplied by sensory nerves which in the spinal cord have intimate relations with sympathetic nerves from viscous affected. From the viscous a continuous stream of energy passes to spinal cord through sympathetic nerves. In health this is unperceived; in disease, an increased amount passes, so that on reaching spinal cord it affects neighbouring cells; on these cells the increased energy acts as a stimulus and symptoms produced according to function of cells affected—whether motor, sensory or secretory. When the stimulus affects motor nerve, contraction of muscles served by the nerve follows; when a sensory nerve is stimulated, pain follows in periphery served by the nerve; when cells which supply the organs are stimulated, result is seen in increased secretion, or if it be a hollow muscular organ, then contraction, as in the stomach, takes place, and vomiting is produced. In appendicitis and neighboring peritonitis the portion of the cord in connection with the sympathetic nerve supplying these parts embraces the origin of eleventh and twelfth dorsal and first and second lumbar nerves. The part served by these nerves on right side is bounded by a line drawn around body at height of umbilicus and half way down thigh, and pain in appendicitis may be felt in limited portions of this area, as only in lumbar, or iliac or femoral region. There may be hyperesthesia of the part forming abdominal wall, and the slightest pressure causes pain. This pain is not due to inflamed peritoneum, but to central stimulation of nerve cells, and is further demonstrated by the pain in right testicle in some cases—the tunica vaginalis being supplied by sensory branch from first lumbar, while the scrotum is supplied from the sacral nerves. In many other cases small spots are specially sensitive to pressure, due to nerve branches

which pierce rectus, pressure on them causing pain. One of these is the well-known McBurney's point. In addition to sensory symptoms, there are the results of motor irritation shown in contraction of muscles, especially those of anterior abdominal wall, psoas and iliacus and erector spinae. Resulting symptoms vary according to muscles affected; thus when psoas and iliacus are affected, there may be difficulty in moving hip joint, and disease of that organ may be suspected. I am aware of at least one case of this kind, where the patient was treated for a long time for hip joint disease, till at last more acute appendicitis symptoms showed themselves, when operation was performed, the result being that both appendicitis and hip joint affection were cured. Thus a commencing attack of appendicitis may be mistaken for lumbago, or hip joint disease, or rheumatic affection of hip joint, and as the portion of the cord affected by sympathetic nerve from appendix receives nerves from kidney, ovary, bladder and other organs, so appendicitis may simulate disease in any of these organs. Appendicitis has been mistaken for renal colic, and so treated for years, till supervention of other symptoms induced suspicion of appendicitis.

Among the diseases which simulate appendicitis is muco-membranous colitis. In this disease, while the inflammation is in the colon, and while it has many symptoms peculiar to itself, such as discharge of false membrane and pain on pressure over colon, sometimes that pain, in accordance with the law previously stated, is felt very severely over McBurney's point, and would lead one naturally to suspect appendicitis.

General pneumococcal infection.—As a rule, of course, we would expect a pneumococcal infection to expend its force on the lungs or pleura or pericardium, but it also produces peritonitis, and there was recently admitted to the Bristol Hospital as appendicitis a patient who, on operation, was found to have a purulent peritonitis, which gave a pure culture of pneumococcus. In this peritonitis there may be no lung affection, and the disease may simulate appendicitis or even typhoid. I believe that a general suppurative peritonitis is not infrequently mistaken for appendicitis.

The right ovary and tube being so near the appendix, it is not strange that pyo-salpinx has been diagnosed as appendicitis, and pus in the right iliac region of the female may be the result of appendicitis, but may also be the result of tubal or ovarian abscess, suppurating fibroid, haematocele, extra-uterine gestation, etc.

In the puerperal woman appendicitis may suddenly supervene and take on symptoms of septicæmia. As an example, a woman was admitted to hospital two days after spontaneous labor at eighth month. About a week before labor slight colicky pains were felt in right iliac fossa—no other history of illness. One night after delivery several rigors occurred with rise of temperature. All the

symptoms of peritonitis supervened and acute puerperal septicæmia was diagnosed. There was no vomiting; death occurred on fifth day. The peritoneal cavity contained over two pints of fetid pus. The tip of appendix was sound, but the organ was entirely separated from cæcum at its base, the trouble being caused by a calculus about the size of a bean.

Among other diseases which have been mistaken for appendicitis is a distended gall bladder from occlusion of its duct. It would appear at first blush as if such a mistake in diagnosis could hardly be made, yet I have seen such a case where the symptoms, including the presence of tumor in the appendix region, so simulated appendicitis, that much surprise was evinced when operation showed a distended gall bladder instead of a suppurative appendicitis. The patient did well, the gall bladder being opened and many gall stones removed.

It seems a far cry from an inflamed appendix to perforation of the stomach from gastric ulcer, yet I know of one such case of perforation being so diagnosed. Nor is it at all necessary to condemn such a diagnosis as inexcusable, for it was made with care by competent men.

The number and variety of lesions which have been mistaken for appendicitis is legion, but enough have been here referred to to cause very deliberate procedure in the diagnosis of this affection. So much attention has been called to this disease, its often obscure symptoms, the slight value often to be placed on pulse and temperature, that the surgeon of to-day is more likely to make the mistake of supposing some other affection to be appendicitis, when it is not, than he is of failing to diagnose the disease when it is present.

Dr. Cushing: I had a case of retro-peritoneal abscess in a child which simulated appendicitis, the mass being exactly in the region of the appendix. At the operation appendix was found normal. (Several other cases were reported by Dr. Cushing.)

Dr. Richardson: Our experiences prove the necessity of operation. I have seen all kinds of diseases simulate appendicitis.

Dr. VanWart: I had a case of sub-diaphragmatic abscess which simulated appendicitis. In recurrent attacks the most prominent symptom is pain on pressure.

Dr. F. J. White: Osler speaks of mucous enteritis as a neurotic disease—not an inflammation.

Dr. Daniel: I am well aware that mucous enteritis may have at times little or no rise of temperature. I forgot to mention perforating gastric ulcer as sometimes simulating appendicitis, of which I saw one case; also obstructed cystic duct producing enormous gall-bladder.

Dr. Chisholm: Reference has been made to intestinal obstruction. I have had five cases during the past year that I believed all were due to appendicitis.

BORDERLAND MENTAL CONDITIONS.*

By J. A. MACKENZIE, M. D., Assistant Medical Superintendent Nova Scotia Hospital;
Senior Demonstrator of Anatomy, Halifax Medical College.

The indefiniteness of our knowledge of what constitutes soundness of mind is lamentably manifest in the many and varying definitions, ascribed to different authors, as to what constitutes insanity.

It is a well known fact that even those who have devoted all their ability and time to the consideration and treatment of mental diseases have met with almost insurmountable difficulties in their efforts to define the limitations and requirements of a sound or healthy mind.

This being the case, is it any wonder that the ordinary busy practitioner, though a walking cyclopaedia of medical knowledge in himself, at times should be in a quandary when called upon to determine whether an individual under observation has, or has not, taken that step beyond which he or she becomes medically and legally irresponsible?

There are many people who cannot actually be considered as insane, yet are habitually on the borderland of mental disease; between them and the lunatic is only a mere step; but when that step is actually taken is often difficult to determine. In general, it must be accepted that no hard and fast indications or symptoms exist especially indicative of mental aberration; for in some persons we find peculiarities and oddities, such as eccentricities and crankiness, etc., which though indications of degeneracy are really only mild instances of mental derangement. This indefinite line between mental sanity and disease constitutes the true borderland under consideration.

In the vast majority of these cases, we notice that though the intelligence is not materially impaired, yet there is a nervous weakness which involves that mental function known as the will. There are probably few if any, even normal individuals, who have not, at some time in their lives, under certain favouring circumstances, had a suggestion of a morbid thought or impulse, and only their intelligent will prevented their execution of the same.

Before entering into the consideration of some of the conditions of defective will, etc., reference may be made to a class of mental delinquents, who in common language are known as cranks. These individuals may never, in the true sense of the term, become medically or legally insane. Their mental twist, however, can invari-

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ably be accounted for by a careful inquiry into their family history—many being descendants of lunatics. While some of these defectives may show a limited degree of talent, others manifest, in some directions, marked brilliancy—in the latter type may be included many of our irregular geniuses. Often their peculiarities and mental symptoms are so varied, and shade off so imperceptibly into the ordinary individual, that to define them is almost impossible. They can only be said, however, to be on the borderland of insanity when their abnormalities become rather marked. Individuals of this class are rarely dangerous enough to require asylum treatment, yet actual attacks of mental derangement are more liable to occur in them than in others on account of their degenerative predisposition.

Without enumerating the various oddities and eccentricities of the ordinary crank, it may be briefly stated that the only mental diseases which his peculiarities may resemble are paranoia and imbecility. From the paranoiac he differs in that he has not the well developed persecutory delusions characteristic of that form of mental disease; he is not as cerebrally defective, morally deficient, or as limited in intellect as the imbecile.

In the true borderland mental condition we may have symptoms affecting the emotions or the intellect, but the essential defect is in the will. In the ordinary individual, though he may have morbid impulses and besetting mental conceptions, yet he maintains them fully under the control of the inhibitory action of the intelligent will; while in the unfortunate victim who has had his nervous energy in addition to his degenerative taint weakened, we may find impulsive acts executed in opposition to his better judgment. Such persons have been known to commit the most absurd or criminal acts.

Another symptom, very frequently found in these cases, is that they become, as it were, possessed of unreasonable doubts and fears, the absurdity and ridiculousness of which they themselves are quite cognizant. Nevertheless it may be safely stated that the individual who is entirely free from the stigmata of degeneracy, or perfect mentally and physically, is hard to find. To this inherent tendency on the part of humanity may be attributed many of the mental and physical manifestations found on the borderland of mental disease. The symptom, however, most marked in these cases is their impulsiveness.

Probably, one of the best classifications of these borderland mental symptoms is that of Regis, who divides their impulsions, or impulsive obsessions, into three classes, viz: (1) Obsessions of indecision; (2) obsessions of fear (phobias) and (3) the irresistible propensities or morbid impulses.

In this connection, the term "obsession" is used in its wider sense, comprising all will defects.

The most typical form, the first division, or obsession of indecision, resembles somewhat, and has been known as insanity of doubt. In its mildest form it merely consists in a tendency to question one's own acts, and is by no means uncommon, occurring in many otherwise mentally healthy individuals. In this condition, one almost questions every act he performs, and may become greatly distressed about something, which, to his better judgment, seems quite trivial. It chiefly consists in an idea or feeling which one cannot rid himself off at the time. The forms which these doubts may assume are numerous and variable; for example, a doubt whether one has performed a certain act as he should, such as turning off the gas, closing a door, etc.; whether a certain coin which he possesses is not counterfeit; that he has at a party performed some gross breach of etiquette—his collar or tie not properly adjusted, etc.

This doubting psychosis, in the more advanced cases, may become a very serious matter; their doubts and mistrusts not infrequently resembling that common delusion of the melancholiac, of having committed the unpardonable sin. There is this essential difference, however, in that the borderland individual comprehends his unreasonableness, and therefore it does not to him constitute a belief or a true delusion.

The second division, or obsession of fear, is much less common. The mental symptoms in these cases point to a more advanced deterioration than in the class just described. The unfortunate victim of this type is possessed of an uncontrollable dread it may be of a single object or a certain class of objects. An interesting instance of single object dread was that of Napoleon, who it is said, feared nothing dead or alive except a cat, whose very presence in his room alarmed him so that he would either jump off the floor or flee the room. The forms which these fears may assume are [almost] as varied as they are innumerable. Mention may be made of some of the most common; mysophobia (fear of dirt), claustrophobia (fear of enclosed space), agoraphobia (fear of open space), astraphobia (fear of lightning), haemophobia (fear of blood), etc. Often times these fears can be traced to some mental impression, received by some special experience; such as a narrow escape from being struck by lightning, or being crushed by a falling building, etc. It can thus be easily comprehended how any variety of dread or obsession could arise, and their possibility appreciated by most of us, from our former experience at times.

A very much rarer type of symptoms is that included in Regis' third division, namely, morbid impulses or obsession propensities; here we have still another form of defective mental or emotional control. The individual, however, can only be considered on the borderland when the impulsion becomes so formidable and distressing that the balance of resistance is no longer maintained.

The forms of impulsion are as numerous as are the obsessions of doubt and fear. They may vary from a mere rejected suggestion to the impulse to commit the most serious offence or crime.

Oftentimes these sudden propensities have been suggested by one's environment, such as the sight of a razor or poison, the impulse to commit either a suicide or a homicide. Another form of impulsion sometimes observed, though rarely, is where one has a desire to perform a certain act or movement, yet lacks the power of execution; such as the inability to rise from a sitting posture, walk upstairs, dress one's self, or write one's own name, etc. Any one of these besetting mental states nevertheless may shade into, or form a base for, another type, as an obsession of fear may be the base for morbid impulse.

Closely allied with the morbid impulses is the mental condition of obsession propension; here we find a definitely fixed idea, not a fear, but an irresistible tendency. In this class may be considered the unfortunate victims of pyromania, kleptomania, dipsomania, etc. The condition marks a much more advanced degree of mental deterioration. Here, in addition to the morbid impulse, we have a new psychical element introduced; that of propension. As a result the combined forces cause the inhibitory action of the will to become either blunted, or for the time being, entirely suspended, the unfortunate victim therefore falling a prey to his irresistible tendencies. There is this fact to be observed, however, in this class of cases; for instance, the victim of periodic alcoholism or dipsomania is not induced to satisfy his craving for stimulation by a desire for sociability, oftentimes indulging indifferently as to whether alone or in company. Sometimes this craving can be traced to the individual's physical condition of malaise, insomnia or restlessness; the unfortunate victim finally submitting to the gratification of his desire. Somewhat similar to the foregoing is the condition of vagabondage sometimes found in youths. They are seized periodically with the irresistible desire to go tramping. Among this class of extreme types may also be included certain forms of sexual perversion.

The diagnosis of borderland mental conditions is usually simple. It may, however, be generally stated that too brief an examination should not be made of any case. All obtainable facts should be utilized in addition to one's own probable personal knowledge and observation. The testimony of friends, a comparison of his present condition with his former self, occupation and position, also his habits, should all receive careful consideration. From a legal point of view, and charged with crime, if on examination it be discovered that a number of well marked degenerative stigmata exist, thereby placing the individual below the average in his station of life, or any question as to his responsibility, he should invariably be given the benefit of the doubt.

As already stated, certain obsessions resemble very much the type of mental depression characterized by fears and doubts. The true melancholiac is, however, quite positive and firmly convinced of the truthfulness of his self-condemnation. No doubt exists in the individual's mind that his ideas are irrational or not consistent with facts as they actually exist, while in the true borderland mental condition the individual is quite conscious of the unreasonableness and oftentimes ridiculousness of his fears and doubts; nevertheless if not soon recovered from, their continued mental presence is liable eventually to terminate in some form or other of mental disease.

The condition may also sometimes be confounded with the earlier stages of paresis, where depressed or kleptomaniacal symptoms are present. The characteristic physical and mental symptoms of paresis will, however, sooner or later appear, thereby removing any doubt as to the nature of the case.

It can easily be differentiated from hysteria, the latter having characteristic so called ear marks of its own.

As to prognosis, much depends on the individual's original defect. With a proper and faithful application of the various modes of treatment and hygiene that have born the test of time and experience, it may be said that the majority of the cases, if not substantially cured, can at least be relieved. This cure or relief, nevertheless, is not likely to be obtained in a moment or by a single prescription or simple suggestion. A proper knowledge of what the mental condition is and is not constitutes half the battle, thus laying a foundation for the prognosis, also the course of treatment. Though many individuals experience, at times, slight obsessions, it does not follow that any great and dangerous significance should be attached to them; yet in conditions of ill-health, they may prove more serious than at first appearance.

It may be briefly stated that when a marked, original, nervous weakness or degenerative taint exists, the prognosis for complete recovery, without relapses, is not good; the condition often passing into some form or other of mental disease. In this connection it may be added that some of these unfortunates if not relieved or cured, pass through years of suffering, apprehension and despair; all the while anticipating or fearing, and in some instances almost hoping, that some incurable organic disease would take hold of them and carry them away.

The treatment of these cases is as complex and varied as are the symptoms, and invariably taxes all the skill, patience and tact of the physician. No iron clad rule can be said to apply to each and every case coming under one's care. Some cases, even of long standing, are rapidly relieved at the beginning of a course of treatment. Cases with symptoms of marked mental depression are

occasionally much benefitted by a full consultation, wherein they get a clear and just information of the nature of their ailment and the probabilities of a cure, thereafter entering with courage and will on a line of treatment. In rare cases all mental symptoms may disappear but one, which persists for a long time, much to the perplexity and annoyance of the physician, though not interfering to any extent with the daily routine of the individual's active life. Oftentimes much benefit is derived by getting these patients put in working order, so to speak, even though they may have many unpleasant symptoms to distress them at times. In other words, if possible at all, get them back to those duties in which they are happy and useful. Induce them to look forward to the day when they shall return to their former labours.

Among the pharmaceutical preparations serviceable are tonics and eliminants as well as hypnotics, judiciously used. As a rule, a combination of various methods of treatment, local and general, accomplish more than any one exclusive mode of treatment. Individual idiosyncrasies should be carefully inquired into and as far as possible respected. Not only should the treatment be occasionally changed to suit the requirements of the patient, but at intervals it may be entirely withdrawn. A suspension of treatment with continued mental improvement, oftentimes makes more of a direct impression than continuous treatment. In patients long under care, some worthy authorities recommend a sedative prescription or mode of treatment one week, a tonic the second, and the third do nothing whatever. The method has a recommendation of safety, in case anything in the treatment should meet an idiosyncrasy. To be effective, it is accepted by all that hygienic treatment should be combined with the medical.

In cases of cerebrasthenia (brain exhaustion) vigorous outdoor exercise is required. In the housewife overworked; the mother worn by repeated childbearing and prolonged lactation, complicated, perchance, with local disorders, absolute rest in bed, in quiet, if not darkened rooms, combined if necessity demands with local treatment, yields best results.

A change of scene or occupation in certain cases is all that may be required, others being made worse by such a course. Perhaps, the agent most employed, in the present day, is hydrotherapy (all kinds of baths) sometimes reinforced by massage and electricity. Our enlightened knowledge of the latter agent has aided us materially in producing, if not a cure, at least a temporary alleviation of symptoms. Hypnotic suggestion, though generally today only used as a last resort, has some very worthy advocates. It is quite probable that when its application is better understood and its uses limited to the skilled physician, many of the present day prejudices may become eliminated.

AN UNUSUAL TERMINATION IN PERFORATING APPENDICITIS.—AN UNEXPLAINED BRADYCARDIA.*

By P. C. MURPHY, M. D., Tignish, P. E. I.

MR. PRESIDENT AND GENTLEMEN,—In the paper which I have the honor of presenting for your consideration, I make little attempt at elaboration, beyond the necessary clinical facts of two unique cases coming under my immediate attention since we last met. I have deemed them worthy of publication on account of the rarity of the termination in one case, and the (to me) inexplicable symptoms, as well as the unexpected result in the other. The ending in both cases is a striking example of the *vis medicatrix naturae* and the fallibility of our science or its votaries even where the danger signals are most prominently displayed, and where there is least doubt on our part about the correctness of our diagnosis.

Appendical disease has received so much attention of late years at meetings of this kind, that we are beginning to regard the man with a paper on this malady somewhat in the nature of a bore, and I would feel an apology due you did I presume to occupy your time along the well-worn paths.

Miss McC., a young lady of 19 years, whose family is in comfortable circumstances, of good heredity, and hitherto organically and functionally healthy, was, on the morning of November 21 last, seized with sudden abdominal pains and vomiting. I was called the same evening, and found patient in bed, with anxious expression of countenance, knees flexed on abdomen, and complaining of severe pain in right inguinal region; pulse 100, temperature 102°; respiration short and hurried. Abdominal examination revealed marked tenderness around the appendical region—in a word, all the well-known symptoms of appendicitis. I ordered hot applications, with morphine just sufficient to quiet pain, and small doses of calomel to clean out bowels. On the following day there was a recession of all the symptoms, with the exception of abdominal tenderness and increased tympanites. Ordered soap enema, which brought away considerable flatus and gave marked relief. Continued the expectant plan of treatment without much change in condition until evening of sixth day. Temperature was still 100 $\frac{1}{2}$ ° and pulse 95. There was evidence, too, of developing mass beneath McBurney's point, which I verified by rectal and vaginal examination. No rigors thus far. Suggested operative interference as the only safe course, but parents objected. At four o'clock on morning of seventh day patient was seized with rigors, severe abdominal pain and persistent

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projectile vomiting of a bilious character. I was hastily summoned, and being six miles distant, I did not arrive until two hours after onset. I found patient in a collapsed condition, Hippocratic countenance, pulseless at wrist, skin covered with a cold, clammy perspiration, abdomen extremely tympanitic, sighing respiration, temperature subnormal; in fact, all the evidence of a recent perforation and impending dissolution. I stimulated hypodermically, and gave hot saline enemata. Sent for my confrere, and advised operation as the only hope of saving patient's life. My confrere arrived and supported my advice, but as we could not give a definite prognosis of the operation, the interference was declined. I remained greater part of day, keeping up stimulation, and at six p. m. there were slight evidences of a favorable reaction. Gave no stimulation during night, except a little brandy and milk, with cardiac stimulation per orem. At 8 o'clock next morning conditions were considerably improved. Pulse 100, temperature 101°, with pulse of fairly good quality. At six a. m. diarrhoea had set in, with pus in the discharges. This diarrhoea continued at intervals of an hour all through the day, and in the evening there was abatement of the local and general symptoms. Pulse 90, temperature 100°. These discharges continued for the next four days of a sero-purulent character, and gradually came back to normal, from which time there was a slow but uneventful recovery. Since convalescence she feels sharp abdominal pains from time to time, showing that danger still lurks in the old place.

It is plain that nature's way of coming to the rescue was well exemplified in this case, and saved the situation despite our fatal prognosis. Adhesions had evidently formed between the bowel and appendicular abscess, and rupture took place directly into the lumen of the intestine. I am thus enabled to report this favorable termination of perforating appendicitis without operative interference. It would hardly be wise, though, to counsel depending upon this result, and as I expressed myself last year before this Association, I believe the only logical line of action in all cases of appendicitis is surgical interference as quickly as possible. The more I learn of the affection the stronger I am convinced that no matter how acute a diagnostician you may be, it is impossible to tell what case is going wrong or what case is going to assume the fulminating or perforating type, after the advent of which the damage may be irreparable. The exceedingly low death rate after operation of late years, I think, makes this the safest and withal the most conservative line of treatment. In this connection it may be worthy of mention that the surgical section of the American Medical Association, held this year at New Orleans, unqualifiedly went on record as standing for operative interference in all cases of appendicitis.

The case of extreme bradycardia which I wish to report is something less tangible than its predecessor, and in it we are speaking of a symptom and not dealing with a definite entity like appendicitis or its complications. The immediate physiological cause of this condition is a well established fact, and we all know how the cardio-inhibitory influence of the pneumogastric can be excited by impressions which have their origin peripherally as in the "solar plexus blow" of the pugilist, or directly as efferent impulses arising in the cerebrum itself. We know, too, that in individuals there is physiological bradycardia and tachycardia, and the limits of physiological pulse rate are at best only relative, and subject to many vicissitudes. When we enter the domain of the pathological, however, the productive factors are what concern us and not the symptoms produced. It is these factors in the case I am about to bring before you that I have been unable to determine.

We are wont to look upon extreme bradycardia as being associated with some grave organic disease and perhaps we most often find this symptom in severe cerebral affections. I was inclined at first to regard the conditions in this case as due to a developing cerebral or cerebellar neoplasm, but subsequent events proved my theory incorrect.

The subject, an old gentleman of 74 years, who had been an asthmatic for 35 years, with slight consequent cardiac hypertrophy, otherwise enjoyed good health and, clear of his asthmatic attacks, which were usually nocturnal, was able to attend to work about his farm. About the end of February, 1902, he began to have slight vertiginous attacks, which made it necessary for him to sit down where he was for a few minutes, when they would pass off without leaving any trace. Towards the end of March of the same year, he was seized with sudden severe vertigo and was unable to maintain his balance. He was put to bed, and on being summoned, I could find nothing untoward, with the exception of his heart action, which was full and strong and regular at 25 to the minute. Sensation, muscular sense and special senses normal, so far as I could determine. Examination of urine negative. I allowed him up after a week, although there was no change in his pulse rate. He had two or three subsequent attacks of less severity, but in the course of six weeks was apparently as well as ever, with a pulse of 72. Throughout the summer he was in as good health as usual and worked around the farm. On the 20th of November he was seized with an accentuated attack like the previous one, and on my arrival I found him semi-conscious, with a pulse of 15 and normal temperature. In a half hour he was apparently as well as ever. He continued to take these attacks four or five times in the twenty-four hours. For want of a better name, we may call them epileptic or pseudo-epileptic seizures, as they were fore-

shadowed by a warning corresponding to the aura of true epilepsy; but his pulse still remained at 15. After this had continued for a fortnight, he gradually began to weaken, and oedema appeared in the feet. Examination of urine all the time negative. At this time during the seizures the cardiac second sound was altogether lost, and the pulse failed to reach the wrist, but its rate was unaffected. I had tried brisk catharsis, iodides and bromides for their absorption and sedative effects, blistering, etc., all to no purpose. A dose of morphine hypodermically at the onset of spasm would mitigate its severity, and was the only thing that seemed to do any good. The nocturnal seizures were the worst, and about the fifth week of the trouble we nightly watched for him to die. About this time I called in a capable consultant without removing the perplexity; but we gave an unfavorable prognosis. For two months the patient remained in this condition, when the seizures gradually became less severe, his pulse from 15 went up to 25, and by gradation back to normal. The oedema left his feet, his general condition improved, and by the first of March he was as well as he had been three years before, with no return of the asthma. All this last spring he attended to his usual avocation, and his heart beat on the 17th inst. was 75, pulse good in quality, but unfortunately his hay fever has returned.

I have presented this peculiar case just as I saw it. I was not in daily attendance after the second week, and have to plead ignorance of the disease which caused the symptoms. Perhaps the assembled wisdom of the Maritime Medical Association can unravel it. It is instructive, too, as showing how long a man will live with a heart beat once in four seconds, without any evidence of organic disease that you would expect to produce the results.



SHOULD PHYSICAL TRAINING AND ESPECIALLY MILITARY DRILL BE COMPULSORY IN OUR SCHOOLS ?*

By J. A. SPONAGLE, Major A. M. S., Middleton, N. S.

Dr. Lorenz, the famous Austrian surgeon, who has recently been visiting this country and demonstrating the "bloodless" method of treating congenital deformities, while being entertained by the medical members of the Senate and House of Commons, is reported to have referred to the well known fact of the eminent fitness of medical men to act as legislators—though this is not always appreciated by the electorate. I presume he meant that as a body they are supposed to be, and probably are, more patriotic, more disinterested, and in every way, as a rule, more public spirited than any other class of business or professional men.

When, for instance, was it known that our friends of the legal profession met in solemn conclave to discuss ways and means of lessening litigation or preventing crime; or our friends, the clergy got together, without regard to denominational lines, and discussed the question of the undue multiplication of churches; or our business friends, the merchants, held a convention to devise ways and means for the reduction of the cost of living to their customers; or who ever heard of a druggist preparing a paper on the best method of living without drugs or patent medicines? Against this may we not, as medical men, point with pride to the list of subjects usually discussed at medical societies or to mention such names as those of Jenner, Lister, or the late Major Walter Reed, U. S. A., through whose investigations largely, the mosquito theory, as the only means of the propagation of yellow fever, has been established and who undoubtedly shortened his life thereby? Consequently following this humane instinct, we find the physician of to-day interesting himself in this and that scheme for the physical welfare of, in many cases, an ungrateful public. Still, with a high and holy motive, and with the shining goal in view, he keeps on nothing daunted. These remarks are not made in any spirit of glorification of our profession, but merely to emphasize a fact which is sometimes ignored, and to express the hope and conviction, that even a poor presentation of a subject, such as this, is likely to get a sympathetic and not too critical a hearing from you gentlemen.

The school room and the methods of our present educational system have not escaped the vigilant eye of our profession, and the process of evolution now going on in the minds of educators and the public generally has been materially advanced by us, as a body, and I believe it will not be many years before the one-sided system now so zealously followed will be modified in many respects, and another

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and more rational one adopted in its stead. Then it will not be the object of teacher, parent and pupil, that the latter should be ready at the yearly July examination to discharge a certain amount of temporarily retained data, which, having done duty, are promptly forgotten.

While it still may be thought that classics and mathematics are important, it will also dawn upon people that it may pay them to see that their children are provided with well developed muscles, sturdy limbs, supple joints, erect figures, and good chest measurement and expansion. And that an alert, springy gait and good digestion and a reliable nervous system might possibly count for as much in this struggle for life as the fact that, for a short and somewhat remote period in their existence, these children knew all the dates in the British history or had Virgil or Xenophon at their fingers' ends. When it is also found that by some modification in our present school curriculum, physical and mental culture may go hand in hand with mutual advantage to each other, then these same parents will be as keen to see that their children can march correctly as to spell, and will be as proud to see them successfully execute their physical exercises as a geometrical problem. Furthermore, it may even dawn on School Boards that a miniature rifle range might possibly be as useful from an educational standpoint as a microscope, and that dumb-bells have their uses and do not seriously interfere with slate pencils.

In our country towns and villages, our children are being injured every year by perhaps not so much excessive study as an almost total neglect of the growing body on the part of those having them in charge. Our friends in Scotland have also evidently realized this, for with characteristic thoroughness they have gone to the expense of a Royal Commission on Physical Education, and through the kindness of my friend, Doctor John Stewart, who, as you know, is always interested in any good cause, I am able to quote to you extracts from the evidence, thus:

Dr. Almond, head master of Lovett's School, said: "That the more individuality and less cast-iron uniformity there was in schools, the better it would be. Physical exercise had not interfered with scholarly success.

Mr. Charles J. Cunningham, of St. Mary's R. C. School — the scholars being chiefly children of factory workers—said, "two and a half hours a week is spent in physical drill. The exercise had a good effect upon the discipline of the school."

Mr. Bain, Chairman Kilmarnock School Board, spoke warmly as to the good effect of a cadet corps in connection with Kilmarnock Academy. The boys were proud to belong to it, and no objection was made by the parents on the ground that it favored militarism. Theoretically, he was in favor of some form of physical drill being made compulsory for lads between 14 and 18 years. For his part he would disregard any cry against military drill.

Mr. Jas. Turnbull, headmaster of Galloway School for twenty

years, whose excellent curriculum in physical drill several witnesses had eulogized, said the present physical instructor visited the school one hour every week, put the classes in turn through their exercises, saw the teachers do their work, and checked mistakes. The teacher then carried on the work till the next visit of the sergeant of that particular class. Boys and girls took the same exercises. The former had three hours, the latter one. The infant classes had half an hour with odd minutes between. Only those children who procured a medical certificate were exempted. The training was divided into three parts, drill, physical exercise, gymnastics, the latter being optional; drill took about quarter of the time. All the exercises were according to the Aldershot curriculum, besides special exercises with dumb bells and bar bells. The work for infants was slightly modified. They had a central hall for bad weather. The children took great delight in the work and the parents were satisfied. The weak became stronger, the slow ones smarter, the slovenly were braced up and the health of all improved, the whole having a telling effect upon the attendance. In his opinion, all teachers should have a special training for the work and be examined by an expert. The school staff should undertake the work under the inspection of a visiting instructor, who could visit a number of schools and thus save expense. Physical work should be done in the open air. There should be a universal system so that the children of migratory parents could carry from one school to another the exercises just as they carry the rules of grammar and arithmetic. The other subjects of instruction did not suffer, both were benefited by the extra time devoted to the subjects. For precision and accuracy the work was best done by numbers. He was quite sure the setting aside of three hours a week for physical work had not lowered the standard of book work. His Majesty's inspector says of this school, "that it is conducted on thoroughly sound lines and in every department the children are receiving a training of the highest educational advantage. Faultless discipline is maintained without effort, and the whole tone of the school is admirable. A specially pleasing feature is the attention which is given to drill and gymnastics, which have developed to such an extent as to give the school a unique position."

Mr. Archibald Andrew, A. B., urged the importance of teachers being trained in their student days, and expressed the opinion that as an aid to all round development it was desirable to form rifle clubs in parishes, and that every youth should be required to attend meetings for practice in shooting and for drill. He did this partly on patriotic grounds and partly because he believed that rifle practice was part of physical and material development.

Dr. James Kerr, of the London School, blames "the teachers largely for lack of interest in the matter (1) because of their own poor physical condition (2) because of their lack of knowledge regarding hygiene and physical exercise. This lethargy is very largely transmitted to those in their care." If he were in this country I think he would likely

see a similar condition of affairs. As most of the evidence given was corroborative of the above I shall not weary you with other examples. The point to be particularly emphasized is that the experience of all tended to bring out the fact that the time devoted to physical culture was more than made up by increased interest and improved health and consequent regular attendance. Another important point is that mental effort, restraint, normal breathing and consequent chest expansion are ensured by such exercise. This I am sure can be readily verified.

Last summer I happened to be in Halifax while the 63rd Rifle Tournament was in progress. Among the many excellent and interesting features, none perhaps aroused more enthusiasm than the remarkable marching of the boys of the Protestant Industrial School and I almost felt that I would n't mind being a boy again, and a bad one at that, if I could march as well as they. What is being done there and in a number of our city schools should be through the country generally.

In the McDonald School, under the consolidation scheme, about to be established in Middleton, we are endeavoring to establish this feature and have advertised for a vice-principal with a certificate from a military school. It strikes me if the local governments could be induced (1) to give this training a more prominent place at their various normal schools and (2) to provide a few travelling instructors in physical and military drill, a step in the right direction would be made. Could not the Dominion Government at their various military schools arrange for teacher's classes during the midsummer holidays?

The Royal Commission already referred to recommend: (1) That physical training should be regarded as of equal importance with mental training. (2) During school life physical training is quite as important for girls as boys. (3) Systematic training is quite as important for country children as town children.

A medical friend of mine once asked me why so many anaemic girls come from the country. I could not answer him then, but a few more years' experience have led me to the conclusion that the bad ventilation of school rooms, the constraint due to stooping over low desks, and the strain of the examination system, account for a large percentage. So we find anaemic girls predominating, as well as round shouldered, narrow chested boys, smartness and alertness being exceptional. This is painfully manifest at the annual training. Now I can see no reason why our school system should not be arranged so as to qualify the youth of our land to go proficiently through the squad and company drills as well as to sign the service roll. If that were the case how much more valuable to the country would be the annual training. This feature may well interest any government or any patriotic citizen and I trust before many years that much of the time now absolutely necessary at our annual trainings to teach the recruits the veriest rudiments of drill may be available for other purposes, and in that way the question of national defence would be very largely solved. We don't want a standing army but we do want every citizen ready in case of an emergency.

No doubt, it may seem to you, Gentlemen, that the question I have asked is rather a bold one and a good deal that I have suggested may be desirable; still it may be open to question if it be expedient to advocate making drilling and its collateral subjects *compulsory* in our schools. I am aware that any one doing so is liable to be regarded as either a crank or an enthusiast or both. For my own consolation and for the comfort of those present who may possibly be as erratic as myself permit me to quote recommendations (1), (8) and (9) of the Royal Commission on Physical Training (Scotland):

(1) Elementary Schools.—The improvement in regard to physical training will be brought about chiefly by a more intelligent conception of the proper aim of education, by recognition of the fact that the education cannot be based on sound principles which neglects the training and development of the bodily powers and by judging results as they are shown over the whole of school life, and not by shorter portions of that life. The school life should cover not only a larger part of the working time, but also of the recreation of the pupils. Larger provisions of playgrounds and of exercise halls is necessary, and might with advantage take the place of a certain amount of class-room accommodation. Variety should be substituted for formal methods, and in connection with games, use should be made of all available voluntary help.

(8) System.—While we are unwilling to confine teachers unduly to a hard and fast system, we think that certain principles should be carefully observed, and fundamental uniformity of method, for convenience of organization, maintained. We have recommended (Part VIII, 180) the appointment of a skilled committee to prepare, under the auspices of the Education Department, a model course for a National System of Physical Training for Scotland. We hold that a daily amount of school time should, so far as possible, be devoted to physical exercises; short periods of exercise at frequent intervals being preferable to periods of longer duration at greater intervals.

(9) Teachers.—Except in large schools or schools where the services of a special instructor are employed, the physical instruction should be given by the ordinary teaching staff. But for this purpose a certain amount of systematic training is absolutely necessary. The qualification for giving physical instruction should be attested by a certificate issued under the authority of the Education Department, and in future no teacher should be recognized for giving instruction of this kind unless he or she possesses such a certificate. In due course the possession of such a certificate should be an indispensable condition of recognition as teacher in any State-aided school.

No Training College should be recognized for assistance from the Parliamentary grant unless such systematic training forms a necessary part of the curriculum, or unless other provision is made for its being given to the students of the college.

DISCUSSION.

Dr. Armstrong: Physical drill, no doubt, is a splendid thing, and I concur heartily with the opinions expressed by Dr. Sponagle.

THE CLINICAL SIGNIFICANCE OF VERTIGO*

By O. J. McCully, M. D., M. R. C. S. (Lond.)

When the physician is presented with a sudden case of vertigo he at once suspects that it is aural in its nature. He examines the ear and finds by placing a tuning fork on the mastoid that bony conduction is impaired, but also that changes have taken place in the middle ear; and he is at loss to know whether this loss of bony conduction existed before the attack of vertigo or not. He can only arrive at a diagnosis by a process of exclusion and he must therefore know all the abnormal conditions which produce vertigo.

We use the term vertigo to include all disturbances of equilibration such as whirling about, giddiness and dizziness, including under it the subjective form where the patient himself moves or appears to himself to move; and the objective form in which the objects around him appear to move.

The semicircular canals are the sensory organs which preserve our equilibrium, or in other words they constitute the special sense of our equilibration. Now neither the power of maintaining our equilibrium nor the power of knowing the impressions by which it is governed is born in man. Each is gradually developed by a process of education.

The special sense of the semicircular canals is assisted in this process by the sense of touch, sight, the muscular sense, the viseral sense, and some say an articular sense. In a healthy condition all the information derived from these different senses and from the condition of the lymph in the semicircular canals harmonizes and corresponds and then we have perfect equilibration. When things do not thus harmonize we have vertigo.

Nearly every one is familiar with the vertigo experienced when ascending to a great height above surrounding objects. Here the visual sense is disturbed, is placed in a new environment; and the vertigo is in proportion to the degree in which we have trusted to our visual sense for the maintaining of our equilibrium. In the vertigo of sea-sickness the visual, the muscular, the viseral sense and the lymph of the semicircular canals keep sending ever varying and contradictory impressions to the sensorium and thus give rise to this very distressing symptom.

By far the greatest per cent of all cases of vertigo originate from some lesion in the ear and is caused by an abnormal condition in the semicircular canals or in the other parts of the ear in direct relation with them. Our first aim then in making our diagnosis should be to determine whether the vertigo is aural or not.

*Read at meeting of the Maritime Medical Association, St. John, July 22, 1903.

AURAL VERTIGO.

1. We may have very pronounced vertigo from impaired cerumen or eczematous secretions in the external auditory canal. Here it is necessary that there shall be pressure on the membrana tympani by which the ossicles are pressed inwards, thus increasing the labyrinthine pressure or reflexly producing congestion of the semicircular canals. Inspection here reveals at once the condition and on the removal of the foreign body all trouble ceases.

2. The different diseases of the middle ear may in the same way cause vertigo. We may mention tubal congestion, catarrhal and purulent otitis media. Here at times the symptoms may be very severe, attended with loss of hearing, tinnitus aurium, vomiting and even loss of consciousness—in fact all the symptoms of haemorrhage into the labyrinth. Here the non-impairment of bony conduction shows at once we have not to deal with the labyrinth, and the inspection of the membrana tympani and the passing of the Eustachian catheter confirms the diagnosis.

3. We will now consider the most frequent and the most serious of all cases of vertigo, those which originate in the labyrinth.

(a) Anæmia of the labyrinth.

This will be found in those cases in which there has been profound loss of blood from whatever source, and also in simple and pernicious anæmia. Here the attack seldom occurs spontaneously, but is brought on by some exciting cause as a sudden fright, a severe pain, or some visceral disturbance. Here the tinnitus aurium is low pitched and synchronous with the cardiac pulsation. Besides the anæmic condition of patient, we have marked loss of bony conduction and inability to hear high pitched tuning forks by air conduction.

(b) Hyperæmia of the labyrinth.

This is the most frequent of the less severe forms of vertigo. This may be either venous or arterial, and is most apt to occur in patients who are full-blooded and generous consumers of meat and who are of a gouty or rheumatic diathesis. Over indulgence in alcohol by increasing the force of the heart's contraction, leads often to a permanent dilatation of the labyrinthine vessels.

We may have permanent venous congestion of the labyrinth produced by mechanical pressure on the great vessels of neck by means of tumors. The vertigo here is generally brought on by some exciting course, as fright, rage, sudden exertion or over indulgence in stimulants. The vertigo here is accompanied by a sense of fullness and distention in the head, by a tinnitus aurium of a high pitched character; the high pitched tuning forks are not well heard by air conduction and bone conduction is much impaired. Here the habits of the patient and the increased vascularity of the skin of the face help to confirm the diagnosis.

In labyrinthine apoplexy or Ménière's disease, the patient is seized with a vertigo so severe that he falls to the ground, attended with a sense of nausea or vomiting, a very loud tinnitus aurium, almost absolute deafness and complete, or almost complete, loss of bony conduction.

In labyrinthine embolism and thrombosis, and in inflammation secondary to either acute or chronic purulent otitis media, the symptoms are much the same as in labyrinthine apoplexy, only do not come on so suddenly and are not so severe.

We will now take up those cases of vertigo which arise from derangements outside of the ear.

Certain derangements of the sight cause vertigo. We frequently find vertigo associated with what is called miners' nystagmus. This is a twitching of the eye which is frequently found in coal miners who have had to work in a bad light and in a constrained and unnatural position. We can determine that the vertigo is due to this condition of fixing the eye, by means of firm pressure stopping the twitching and at the same time stopping the vertigo. The vertigo here is not due to any central disease but is a result of contradictory impressions made upon the brain by the irregular movements of the eyes.

Similar in its nature is the vertigo caused by diplopia resulting from any anomaly of the external muscles by which double vision is produced. Here we can determine at once the cause by closing one eye, when the vertigo will cease. Associated with the eye is also another very distressing condition which has been given the name of agoraphobia. Here the patient can walk well in a narrow street or lane, but has a very distressing vertigo when crossing an open square or when in the open country. These patients generally have some abnormal condition of the nervous system. The explanation most generally accepted for this is that the patient has educated himself by a guidance of near vertical lines, and when they are removed contradictory impressions are carried to the brain and thus the vertigo is produced.

Vertigo comes from a great number of inter-cranial morbid conditions, such as tumors, haemorrhages, softening and abnormal new formations of all kinds.

The vertigo is most pronounced in tumors of the cerebellum and here the gait assumes a peculiar staggering or swaying motion. When the lesion is confined to the anterior part of the middle lobe, the patient tends to fall forward on his face, and when the posterior part of the same lobe is affected, the head is thrown back and there is a constant tendency to fall backwards. When the lesion is confined to one of the crura cerebelli there is tendency for the body to move around in a circle, and when in a recumbent position for the body to turn around on its long axis.

We have also very pronounced vertigo in lesions of the pons Varolii, the cerebral peduncles and corpora quadrigemini. Here we nearly always have diplopia which would of itself account for the vertigo but we often find pronounced vertigo here when diplopia is absent.

Besides these distinctly localized inter-cranial causes of vertigo we often find a lesion of the cerebrum producing it.

There are two lesions of the spinal cord in which we may have vertigo, viz: locomotor ataxia and multiple sclerosis of the cord.

Stomachal vertigo was first described by Troussseau, and in its severity and alarming nature resembles Ménière's disease. The patient who has impaired digestion eats a hearty meal of an indigestible nature and in an hour or so is subjected to some severe mental or bodily excitement. He becomes dizzy, reels, falls down. He seems to himself to be turning over in a perplexing way or to have currents which are flowing in all directions in his head. Surrounding objects also appear to be moving about in a mysterious way. He may or may not lose consciousness. After a while vomiting takes place or diarrhoea sets in and he recovers as suddenly as the attack set in.

Here the non-impairment of bony conduction and the absence of deafness and tinnitus aurium differentiate from haemorrhage into the labyrinth.

Among the most common of transient vertigoes we may mention those due to such toxic agents as alcohol and tobacco. An overdose of belladonna, lobelia, hyoscyamus, and veratrum viridi may produce vertigo. Large doses of quinine often produce vertigo, but this is not due to any toxic properties, but due to the hyperæmia of the labyrinth or the minute haemorrhages produced in the internal ear. The vertigo which we have in fevers and la grippe are no doubt toxic in their nature, due to the poisoned blood acting directly on the nerve centres.

We have many cases of vertigo which we cannot explain, except by saying they are reflex in their nature. The initiative may be situated in any part of the body. As an example of this variety, we may mention the well marked vertigo which often results from presence of worms in the alimentary canal.

There are still other forms of vertigo which we will only mention, but which must be borne in mind—the vertigo of old persons affected with arterio-sclerosis; the vertigo which persists often from sun-stroke; the vertigo which attends severe attacks of hemicrania; the vertigo which often comes in gouty patients just previous to the attack.

DISCUSSION.

Dr. T. Walker: Dr. McCully's paper is admirable. One kind of vertigo in old people, where the arteries are rigid and the heart weak.

The President: Vertigo I have seen due to a reflex cause as mentioned by Dr. McCully, as, for instance, worms in children.

Dr. McCully: Some causes I may have omitted in order to keep paper in the proper limit of time. In arterio-sclerosis I know vertigo occurs and also in migraine and in gout.

METHYL ALCOHOL POISONING.*

By M. E. ARMSTRONG, M. D., Bridgetown, N. S.

Since methyl alcohol, wood alcohol or methylated spirits, has become of common use by the laity, and is sold by hardware stores and general country stores everywhere, it seems very important that our attention be directed to its exceedingly toxic action.

Just why poisoning from this substance has become more frequent of late than formerly we do not know, unless it is because it is more generally used; and as it costs less than ethyl or common alcohol, it is supposed by the public to be much the same only as much weaker in strength as it is cheaper in price.

That the profession knows less of its action than we should is proven by the frequency it is prescribed instead of the more costly alcohol for sponging or put in liniments. That the druggists know little of its toxic properties is shown by the frequency with which it is found on their shelves and in their preparations, such as essences, Jamaica ginger, bay rum, etc, where it would cost less than the ethyl alcohol. That the public are ignorant of its exceeding potent action and disastrous effects on the eye is shown by the frequency of cases of poisoning the last five or six years.

The case I desire to report occurred in my own practice one year ago.

I was called at 1. p. m., Tuesday, July 22nd, to see a man 33 years of age who had suddenly become blind. From the patient and his wife I got the following history :

For several days previous the patient had been drinking and had taken very little food. On Sunday, being unable to obtain liquor (a Scott Act town), he drank a bottle of bay rum during the day. Monday he worked at his trade of upholstering and varnishing. Monday evening, not being able to yet procure liquor, he sent his wife to a hardware shop and procured the bay rum bottle, a 7 oz. vial, of methylated spirits. This he drank between 7 p. m. and midnight, diluted with water. During the evening he vomited once or twice and complained of gastric pains, but took more of the wood alcohol to relieve the distress. Before retiring he complained to his wife that he could not see distinctly, but as he had been troubled with sore eyes they thought little of this. Through the night he slept well and in the morning concluded to remain in bed, as he still had some abdominal pains and his sight was not good.

*Read at meeting of Maritime Medical Association, St. John, July 22nd 1903.

During the forenoon he vomited several times. He still had great faith in the methyl alcohol for his troubles and wanted his wife to get another bottle, but she had become afraid of it and refused, although ignorant of its action. At noon he was more distressed and became totally blind. At 1 p. m., when I was called, 11 hours after he had finished drinking the methyl alcohol, I found him sitting up in bed with an anxious expression, pupils fully dilated, no reaction to strong light, complete blindness, sweating quite freely, pulse good at 80. He complained that he felt very badly and thought if he did not get relief he would die, but he did not complain of distress in any particular part of his body. As soon as I learned what he had taken, I gave him a hypodermic of strychnine as the orthodox treatment for toxic amblyopia, with no improvement in his symptoms.

In the vomited matter I could get no odour of methyl alcohol so I gave nothing by mouth or stomach. At 3 p. m. he began to get dull and soon passed into coma from which he could be partially aroused for a time. His temperature became subnormal and at 5 p. m. he died.

In looking over recent text-books, I have been struck with the absence of any reference to this substance, and it is only from the medical journals that I have been able to find any reports of its potent properties.

Since 1898, a large number, more than 100 cases, have been reported from various parts of the country. In all cases the symptoms seem very constant and about as in the case described.

Dr. Gifford of Omaha reports the following: A patient drank $\frac{1}{2}$ pint of a mixture containing $\frac{1}{3}$ methylated spirits and $\frac{2}{3}$ water, or less than 3 ounces of methyl alcohol, and became entirely blind. Another young man drank a similar mixture on Thursday night and died Saturday morning after having become entirely blind, then unconscious. Again 8 men drank from a jug containing a beer bottle of methyl alcohol in a half gallon of water, two became totally blind and died in about 24 hours, two others that drank less had severe pain in stomach and vomiting.

Moulton reports a case of total blindness in a young man 24 hours after taking wood alcohol, with subsequent improvement to light perception with one eye and fingers at one foot in the other eye.

McCoy and Michaels report the case of a young man who became totally blind after drinking a little more than three ounces. Hiram Woods reports six cases of blindness following the use of Jamaica ginger as a substitute for whiskey.

H. Harlow, of Baltimore, reports two cases of blindness and death from 14 bottles of Jamaica ginger, another of blindness and some improvement after 3 bottles of essence of peppermint and part of a

bottle of essence of lemon. He afterwards had these essences analyzed and found they were made with methyl alcohol.

Dr. Sherer reports five cases, three of whom died within 72 hours.

A number of cases of blindness and a few of death following the inhalations of the vapor of wood alcohol, as used by painters and varnishers, have also been reported.

From the foregoing it will be seen that the prognosis in poisoning from this substance is very bad. Moulton says that in more than 90% of the cases of wood alcohol poisoning, useful vision has been permanently lost.

The loss of sight in these cases is found to be due to atrophy of the optic nerve and injury to the ganglion cells of the retina.

The only treatment I can find, that has been suggested, is that used for other toxic amblyopias, viz :—strychnine, pot. iodide, amyl nitrite, but these are of no use in acute cases when a considerable amount of the poison has been taken.

From the many cases reported, it is plain that in this substance we have a very dangerous poison, and one that should be surrounded with all the restrictions that protect common poisons and drugs, and that its sale should be forbidden in shops other than qualified drug stores.

DISCUSSION.

Dr. Crawford: I would like to know if an autopsy was made in the case reported or in any cases that have been reported; and whether any gross changes were found in the brain.

Dr. Rankine: I have met with two cases who accidentally drank methyl alcohol. One died with acute mania, while the other became blind.

Dr. Chisholm: I would suggest a committee be appointed to wait on the Legislatures to restrict the sale of methyl alcohol.

Dr. Armstrong: Acute cases are largely haemorrhagic and death has been due to that cause. Blindness was thought to be from optic neuritis. I move a committee be appointed to have methyl alcohol placed on the list of poisons. (This was seconded and carried, the following members being appointed to the committee: Dr. M. E. Armstrong, Dr. J. W. Daniel, Dr. P. C. Murphy.)

THE
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Editorial.

MEDICAL EDUCATION.

The curriculum of the modern and progressive medical school has steadily become more extensive and complicated.

Less than fifty years ago a few months of study in a preceptor's office, followed by two or three terms at a medical school, were all that was required of the student before receiving his degree. All the subjects embraced in the curriculum were taught him in the same session, and were practically repeated during subsequent sessions.

The introduction of the graded system and the lengthening of the college term have been followed by other changes. A preliminary educational test is now obligatory and an attendance at college of not less than four years. The rapid development of all departments of medicine has necessitated a much greater amount of laboratory instruction, the addition of new subjects to the curriculum, such as physics and elementary biology, and a wide range of clinical instruction.

In every institution the necessity of increasing and improving practical instruction is being recognized. This cannot be carried out under present conditions without encroaching on the time set apart for the preparatory studies. No doubt a certain amount of classical instruction can be imparted during the second year, or even the first year, but the wisdom of such a change is, to say the least, doubtful.

The difficulties can be overcome to a great extent by either increasing the preliminary requirements, or by adding another year to the period of study, as has been done in Great Britain and Ontario.

The matriculation examination required by the Medical Boards of Nova Scotia, New Brunswick and Prince Edward Island conform in the main to that demanded in Great Britain, and represents a low standard of education. It falls greatly below that required for entrance into the legal and clerical professions and the higher grades of school teachers. Now that there is a supply of medical men in excess of the demand, no conceivable injury can be done by raising the standard of the preliminary requirements.

The addition of elementary biology, inorganic chemistry and physics to the present matriculation requirements would ensure a better class of students and give men more time for work in the fundamental branches in their first two years.

TORONTO UNIVERSITY.

Notwithstanding considerable opposition, the union of Trinity Medical College and the Medical Faculty of the University of Toronto is an accomplished fact. Toronto now possesses one of the best-equipped and strongest medical schools on this continent. The official opening of the united schools took place on October 1st, and was marked by appropriate ceremonies. Representatives of leading schools in the United States were present, and the opening address was delivered by Professor Sherrington, of Great Britain. A notable feature of Toronto University is the generous support given by the Provincial Government. The laboratories have been built and equipped at the expense of the Government, who have likewise undertaken to pay the salaries of several of the teachers.

A PLEASANT AND PROFITABLE TRIP.

The opportunity afforded to inspect a mammoth pharmaceutical establishment, in active operation, is a privilege of more than passing moment, especially when the plant is one conducted by a firm of world wide reputation. Such was the occasion given by the physicians in attendance at the late meeting of the Canadian Medical Association, held in London, Ontario, during the latter part of August. As the guests of Messrs. Parke, Davis & Company, the physicians were taken on a special train, Thursday morning, August 27th, to Walkerville and Detroit, where the courtesies of this firm were highly appreciated and enjoyed.

An inspection of the Canadian Laboratories and offices, located at Walkerville, where the producing of pills, tablets, elixirs, fluid extracts, specialties, etc., was studied, proved of special interest to the visitors, many of whom for the first time had been given the

opportunity of seeing pharmaceutical agents manufactured on such an extensive scale. This laboratory, in part and entirety, is a credit to this firm, as well as to Canada.

During the time allotted to mid-day lunch, the entire party were entertained on board the steamer "Owana," chartered for the occasion, and the ride on Detroit's charming river and Lake St. St Clair for several hours, will long be pleasantly remembered by the participants.

The Detroit Laboratories were reached in the early afternoon, and a long desired opportunity was given to the guests of visiting this plant, which is undoubtedly the largest of its nature on the continent. Something like 1800 hundred persons are employed in connection with this laboratory, and 250 travelling salesmen represent the firm in every portion of the civilized globe.

Standing on the bank of the Detroit River, and adjoining the main plant, is the new science laboratory recently erected at a cost of about \$2000.000, which represents this firm's latest contribution to science. This building, which was inspected with such wonder and enjoyment, is dedicated principally to scientific study and work in the fields of chemistry, and biology, especially in their relation to medicine and pharmacy. From the basement to the roof, the entire arrangement could not be improved upon. Every consideration has been given to the matter of convenience, aseptic precautions, light heat and ventilation. The entire structure is composed of brick, stone and steel, and the delicate and costly apparatus found in every room on the four floors is not only perfect, but shows at a glance the great advancement made in scientific research work.

The immense twin stables were also visited, which, by the way, have been entirely refitted recently, at a cost of about \$25,000, and house about 7,000 creatures, ranging in size from horses—of which there are 200—to guinea pigs and mice, of which there are several thousand. The stables are constructed in such a way as to afford the best sanitary effects possible. The heating, drainage, ventilating and lighting receive quite as much attention as one would give these matters in the erection of a dwelling, or rather a large public institution. The floors are all laid in cement or asphalt; the walls are coated with a hard enamellel finish; the woodwork is replaced with iron fittings, and the corners are rounded, to prevent the lodgment of dust.

With a better understanding of the thoroughly scientific work in which this firm is engaged in connection with their manufacturing operations, and a deeper appreciation of its importance and far reaching effect, the party repaired to the Russell House, where, as a fitting finale to the day's programme, an elegant banquet was held from 7 to 9 p. m.

"RING RULE" AGAIN.

We note with some surprise that in a recent number of the Charlottetown *Patriot*, Dr. Kelly, of that city, endorses the *Patriot's* criticism of the Maritime Medical Association meeting at St. John. Were it not for the fact that the Editor seeks shelter behind Dr. Kelly's skirts, we would follow this matter no further. The controversy with the *Patriot* partakes too much of the character of the historic encounter between the dog and the fish.

We regret that Dr. Kelly did not avail himself of the columns of the News to make any criticism he had against the M. M. Association and its Nominating Committee (for it appears that is the body chiefly aimed at). The lay press is not the most desirable place for medical laundry work and the *Patriot* does not reach the persons most interested in Dr. Kelly's complaints.

The first charge made, which Dr. Kelly evidently endorsed, was that the length of papers was unduly restricted. This was determined on unanimously, and if the change was an improper or unwise one, the place to challenge it was at the meeting itself, where, to those present, the necessity was a very obvious one.

The second charge, endorsed by Dr. Kelly, that improper influences are exerted in the election of the officers, is, we think, amply refuted by the list of former presidents published in the last News, by the increasing success of the Association's meetings and by the fact that the elections at last meeting were all unanimous and followed *unanimous* selections by the Nominating Committee, *of which Dr. Kelly was himself a member and present at the time*.

We suggested that the Editor of the *Patriot* had been misinformed or his data were insufficient to enable him to judge. We cannot offer these alternatives to Dr. Kelly. We wish him to be more explicit in the matter, and the columns of this journal are open freely to him or to any other critics, and are the proper medium for reaching those to whom criticism on medical matters may properly be addressed. The general public are not, as a rule, much interested in these discussions, and their appearance in the daily press certainly "does not tend to the elevation of the profession."

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—*The Medical Times and Hospital Gazette.*

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Society Meetings.

CANADIAN MEDICAL ASSOCIATION MEETING.

The annual meeting of the Canadian Medical Association was held at London, Ont., August 25th to 28th.

Dr. Moorhouse, London, President.

Dr. George Elliott, Toronto, General Secretary.

Over three hundred members were present, many of whom were new members.

Among the distinguished visitors might be mentioned Dr. A. H. Ferguson, Chicago; Theo. A. McGraw and J. Carstens, Detroit; Sir James Grant, Ottawa; Geo. M. Gould, Philadelphia; W. P. Caven, A. McPhedran, J. Cameron, J. Price Brown, Toronto; A. B. Atherton, Fredericton; H. Howett, Guelph; G. E. DeWitt, Wolfville, N. S.; Geo. F. Butler, Alma, Mich.; Jos. Gibbs, Victoria, B. C.; E. G. Wood, Nashville, Tennessee, and others.

The General Secretary read the annual report.

"The Surgical Treatment of Hallux Valgus and Bunions."—J. Newell, Watford :

Hallux valgus implies abduction of the great toe. By bunion is meant the hypertrophied tissues over the internal aspect of the metatarso-phalangeal articulation of the great toe and also the hypertrophied head of the metatarsal bone and first phalanx.

The commonest cause of hallux valgus is ill-fitting boots. The outward deflection of the great toe and of the base of the phalanx uncovers the head of the first metatarsal bone, a false bursa often resulting. The tendon of the extensor proprius pollicis is also displaced outward.

Treatment:—Palliative treatment is not followed by permanent benefit. Properly fitting boots, placing a wad of cotton between the toes, and various mechanical appliances may be of use early.

When deformity is marked and pain is severe, operation becomes necessary.

Operation:—Thorough asepsis is demanded.

An incision 2 or 3 inches long is made on the inner side of the big toe over the bunion. The false bursa is excised, taking care that the contents do not escape. Incision is deepened and overlying tissues separated from the bone and well retracted. The joint is opened and ligaments divided. The great toe can now be easily turned outward exposing the head of the metatarsal bone.

A small metacarpal saw is now inserted and the bone divided just behind the articular cartilage by sawing through obliquely from

above, downward and backwards. Sharp edges of bone and any exostoses are now trimmed off with bone forceps. Wound is now sponged out (Esmarck elastic bandage was applied previously) and closed with silk-worm gut sutures. A pad of cotton is placed between first and second toes and a sheet iron splint is put on the sole of the foot with a piece turned up between the great and second toes to prevent outward displacement. Foot and leg are bandaged. Stitches are removed in ten days. Passive motion is begun in two or three weeks. Splint is not removed for a month. The results of this operation are very satisfactory.

"Inguinal Hernia of the Undeveloped Uterus and Appendages," with presentation of specimens. A. Ferguson, London.

Patient, Mrs. A. B., 32 years old. Married six years. Robust. Consulted him for violent attacks of temporal headache, lasting for twenty-four hours, and recurring every four to six weeks. Health between attacks perfect.

Examination revealed an inguinal hernial (left) which disappeared on lying down; it was increasing in size. The vagina was a mere cul-de-sac, from which cervix was absent.

Bimanual examination:—uterus and appendages appeared absent; tumor felt on left side.

External genitals were well developed. Mammæ were normal, but nipples were absent.

Operation:—Median abdominal incision. Bladder was normal, but uterus and appendages were not seen. Median incision was closed, and hernia operated on. In the sac there was an ovary and imperfectly developed uterus, to which a cystic body was attached. The pedicle was ligated and transfixated, base returned into abdomen, and operation completed by Bassini's method.

Her recovery was perfect and headache ceased. Headache had probably been caused by an attempt at ovulation.

"Causes and Treatment of Post Nasal Discharge." Percy G. Goldsmith, Belleville.

The causes were considered under three main heads,

First—Those situated in the nose: (1) Acute and chronic rhinitis; (2) Polyp; (3) Hypertrophied Turbinals; (4) Frontal and Ethmoid disease; (5) Foreign bodies; (6) Deviated septum.

Hypertrophy of turbinal mucous membrane was the most common cause. He thought the galvano-cautery was often harmful, and that chromic acid was preferable. He condemned the indiscriminate operations on all septum irregularities, and advocated operation on the septum only when it prevented nasal drainage or caused rhinitis or pharyngitis.

Second—Those situated on the naso-pharynx or pharynx. The commonest cause was adenoids, which should be removed by the forceps and curette.

Third—Those due to loss of systemic tone.

In those cases due to an alteration in glandular activity, apart from hypertrophy, it was usually found associated with gastro-intestinal disease, for which proper treatment should be instituted.

In neurotic cases, general systemic treatment was preferable to local medication.

AFTERNOON SESSION.

Address on Medicine. H. A. McCallum, F. R. C. P., (London.) "The Lymph Circulation in Modern Medicine." He showed that during the last twelve years the lymph circulation had assumed great importance in the world of physiology.

Heidenhain experimented with certain agents to determine their effect on the amount and character of the lymph coming from the thoracic duct, which he found he could alter in quantity and quality.

From two experiments he formulated the theory that "the endothelial cells of the capillary wall acted as a secretive filter," and in the last twelve years the scientific world has been trying to confirm or disprove this theory. Many physiologists have arrived independently at the conclusion that "lymph depends on tissue activity," (a limb at rest gives no lymph from the lymph ducts).

Massage, active or passive movement, is followed by free flow. The quiescent animal gives lymph from the thoracic duct, almost wholly obtained from the viscera.

Ranvier, Sala, W. G. McCallum and Florence R. Sabine are agreed that the lymphatic system is a modified portion of the circulating system, that it grows backward from the subclavian vein by a budding process, gradually invading the tissues, and that the ends of the lymphatics are blind, like the lacteals, and they have no physical connection with the tissue spaces. Tissues like the cornea and cartilage are not invaded by these lymphatic capillaries.

These anatomical facts at once threw doubt upon all theories of lymph circulation, for, according to them, lymph is a double circulation composed of the tissue fluids and the lymphatic, or absorbent circulation.

The lymphatic circulation is independent, the interchange on the part of the lymph is to get rid of offensive material and certain secretions, and to obtain in exchange nutritive material and oxygen.

The two great forces of the lymph circulation are glandular activity and the muscular system.

He pointed out the relation of the voluntary muscular system as a lymph pump, placing the limb, as far as lymph circulation was concerned, wholly under the control of the will.

The great amount of the involuntary muscular tissue due to its wide area, was shown to exist in the skin (possibly one-half).

He showed the relation of the skin to the internal viscera and the sympathetic pain reflected from the viscera could be modified by a reflex act from the skin to the viscera. (Example—The lung reflex

of Abraham.) The immense importance of the skin as a great external body worm, connecting with all forms of impression, was pointed out. If it were not that impressions could wake up bodily activity, we would not possess a heat-regulating mechanism. The application of cold, heat and sunshine, and fresh air were the primal forces of the universe, and they all acted on the external body world.

By mere accident we have discovered the use of these forces in the treatment of phthisis, the cold bath treatment of typhoid, the massage treatment of malnutrition. If the skin can wake up as much activity inside, how great must be the influence of the central nervous system over vital activity? We should use it more in treatment in the way of training the patient to cease complaining and to minimize their ills.

He pointed out the importance of the lymphatic circulation in solving the unsolved problems of the medical world, and thought it a field of inquiry which will be enriched in the future.

Medical Section.

Chairman—Dr. R. Bruce Smith.

Dr. Hodge (London) showed a case of "Disseminated Sclerosis." Patient, male, age 22, had suffered exposure to damp after being overheated, five years ago.

Present condition—He is unable to stand alone; right knee jerks is increased. Supinator and triceps jerks well marked. There is no ankle clonus. Babinski's sign present; no nystagmus. Speech thickened.

Sensory functions are normal. He is constipated, and has hesitancy in micturition.

No cranial nerve involvement.

Discussion on the treatment of Typhoid Fever.

Dr. Caven opened the discussion. He divided his treatment into the following heads:—

A. Dietetic—Diet should be mainly fluid. Milk is the stand-by; it is theoretically ideal and chemically the best. Three or four pints in the twenty-four hours are necessary. It should be given every two or three hours, with longer intervals at night and in mild cases. It may be diluted with water, Vichy, or lime water, or flavored with tea or coffee. Peptonized milk may be of service. Mucilaginous drinks of oatmeal or tapioca and calves-foot jelly are allowable. Albumen water flavored with orange juice is of service. Alcohol is required for subsultus tendinum, dry tongue, great muscular prostration and marked insomnia. Patients should drink freely of plain water.

He then spoke of the benefits of artificially-produced immunity, and quoted instances of the South African campaign as illustrative.

B. Antipyretic—The use of drugs to reduce temperature was becoming less common. The Brand bath treatment was the best, but

it was limited to hospitals and selected cases. It was contra-indicated in myocarditis, pericarditis, in intestinal haemorrhage, and in old people.

Antiseptic and Eliminative—Calomel is not a specific, but it limits microbic growth and minimizes toxic absorption. Salol and B. Naphthol are also useful.

Intestinal Haemorrhage—Morphia is good. He has used intracellular and intravenous injections of normal saline solution with much benefit.

Tympanites—His favorite remedies are turpentine in ten minima doses, frequently repeated, and asafoetida as an enema. He has never seen relief from use of rectal tube.

Dr. Herald, Kingston, followed.

There was no specific treatment. The disease should be guided rather than cured. Hydrotherapy gave good results, but sometimes caused shock. He bathes his patients with dilute alcohol, and has them vigorously fanned by an attendant—the quick evaporation materially reducing the temperature.

Milk was his favorite diet, but he also gave other easily digested foods.

He only gives medicine to meet symptoms as they arise.

Tympanites—He gave turpentine externally or per rectum. Bismuth subgallate in 10 gr. doses was usefnl.

He avoids alcohol at the beginning of the attack, but it is the best drug in cases with dry, brown tongue, low muttering delirium and failing heart.

Haemorrhage—Rest must be absolute, mental and physical. Morphia hypodermically and application of an ice bag over region of Peyer's patches are his usual treatment.

Dr. Hunter (Toronto) reported cases where high rectal enemas of saline solution had markedly reduced the temperature.

Dr. H. A. McCallum, (London), believed in the cold bath treatment, with friction. He modifies it by using a rubber sheet on the bed. He believes in purging during the first ten days, and in the use of strychnia during the whole siege to whip up vital activity.

Dr. Caven closed the discussion by warning against the use of the cold bath in certain cases.

"Intoxication in Appendicitis." E. Hornbrook, Cherokee, Iowa.

Medical students, hospital internes and nurses are prone to appendicitis. He related cases to show that canned meats and putrifying material may be causative by increasing toxicity of intestinal contents. He maintained that the greater the local reaction the less is the toxæmias. The appendix si non-resistant to bacteria, especially b. coli communis. Treatment should be eliminative. Acetozone is a disinfectant, deodorizer and diuretic. He has used it with benefit in several cases. He administers calomel, $\frac{1}{4}$ gr. every two hours till bowels move. Prompt operation within forty-eight hours, if intoxication is not too great, will give the best results.

Discussion: Dr. Geo. E. DeWitt (N.S.) used enemas of salines or boracic acid and calomel or olive oil internally. Dr. Hornbrook closed the discussion by saying that appendicitis was neither a surgical nor a medical disease, and that cases ending in gangrene or perforation can't be anticipated.

"The Size of the Pupil as an Aid to Diagnosis." J. T. Duncan, M. D., M. B., C. M.

The Iris possesses two muscles.

(a) Sphincter Pupillæ—Muscular fibre arranged circularly around edge of pupil. Supplied by third cranial nerve.

(b) Dilator Pupillæ—Muscular fibre arranged in a radiating manner. Supplied by sympathetic.

The blood vessels of the iris also influence size of pupil.

(A) Pupils evenly contracted. This may denote—

- (1) Locomotor Ataxia.
- (2) Meningitis and Encephalitis (early stages).
- (3) Inflammation of Cervical Cord (chronic).
- (4) Apoplexy of Pons.
- (5) Opium poisoning.
- (6) Uraemia.
- (7) Epileptic fits (early);
- (8) Retinitis.
- (9) Tobacco Amblyopia.
- (10) Use of myotics.
- (11) Occupation Myosis (watchmakers).

(B) Pupils evenly dilated. This may indicate—

- (1) Paralysis of both third nerves (post diphtheric).
- (2) Intracranial tumors (late stages).
- (3) Intracranial effusions.
- (4) Irritation of cervical sympathetic.
- (5) Acute inflammation of cervical cord.
- (6) Locomotor ataxia (*remonitory*).
- (7) Post epileptic.
- (8) Cataracts.
- (9) Amaurosis.
- (10) Acute mania or melancholia.
- (11) Use of mydriatics.
- (12) Intestinal worms or other irritant.

(C) Pupils unequal. We may suspect.

- (1) Locomotor Ataxia.
- (2) General Paralysis of Insane.
- (3) Unilateral lesion of 3rd or Sympathetic nerve.
- (4) Diseased tooth.
- (5) Pain in any branch of 5th nerve (6) Old Iritis.
- (7) Use of a myotic or mydriatic in one eye.
- (8) Unilateral lesion of the brain (9) congenital.
- (10) Acute Glaucoma (unilateral).

I. Pupils are contracted and fixed. This excludes from (A) uraemia, meningitis and encephalitis (early), retinitis, tobacco amblyopia, occupation myosis.

We then have left for differential diagnosis tabes dorsalis, the use of myotics, apoplectic effusions and epileptic fits, opium poisoning.

II. Pupils are evenly dilated and fixed. This is rare, only present in list (B) in amaurosis (blindness) the use of mydriatics and in complete paralysis of both 3rd nerves.

III. Pupils are evenly dilated and movable.

IV. Pupils are uneven but fixed.

This condition usually points either to (1) locomotor ataxia or (2) general paralysis of the insane.

V. Pupils are equal but movable.

Usual cause is a painful tooth or irritation of some branch of 5th nerve.

"The Physiological Generative Cycle of Woman." Dr. Jennie Drennan, (St. Thomas).

"The Medical Treatment of Diseases of the Nose and Throat." John Hunter, (Toronto).

Same principles of treatment as in other forms of disease should guide us. Patient should be carefully examined. Inflammation (acute or chronic) is the most common disease.

General treatment—Remove morbid waste by dietetic and hygienic measures. Pure air and sunshine are valuable. A cold bath in the morning with brisk friction, followed by some form of gymnastic exercise is beneficial. Locally, nasal douche—make certain there is no obstruction to return flow. Hold vessel on a level with nostril, and gradually raise a few inches. Alkaline and slightly astringent solutions are best. Cleanse field before applying chromic acid or cautery. Regular treatment is imperative. Laryngeal cases are benefitted by inhalation of medicated vapor.

Discussion: Price-Brown agreed that general practitioners should pay more attention to nose and throat. He thought that bath was only suitable in some cases. In hay fever he had advised his patients to adopt some form of hard labor. Results were good. He warned the profession against the two frequent use of electric cautery.

Surgical Section.

Dr. A. B. Atherton (Fredericton) chairman.

"Operation on Hip Joint Disease without Shortening," R. P. Robinson (Ottawa.)

He reported two cases of Tubercular Hip Joint disease, a child aged 4½ years and a young lady of 22, upon whom he had operated with no shortening resulting. After removing all necrosed bone, taking care to preserve all shreds of periosteum, he denudes the healthy bone of periosteum for about half an inch and stitches it to the periosteum, which he raises from the ileum. The muscles are stitched with cat-

gut. Wound is allowed to granulate. Extension with a 15 pound weight is put on. Patient is allowed to sit up in bed in 2 weeks, but not allowed to walk for six months.

Discussion. H. A. Ferguson (Chicago) thought it was impossible to eliminate shortening in these cases. He believed that when the disease began in the synovial membrane it should be treated by injection of iodoform glycerin 10%.

"Gunshot wound of the upper arm with non-union of humerus and destruction of the musculo-spiral nerve." Operation; six months later recovery. Hadley Williams, F. R. C. S.

Patient, 22 years old, in November, 1901, received a lacerated wound of the right upper arm from a breech-loading gun, the muzzle being but a few inches from the inner ends, midway between the axilla and elbow. Examination four months later revealed an ununited fracture of humerus about its centre, with an inch and a half shortening, a discharging serum and musculo-spiral paralysis. A long incision was made from foot of deltoid to front of elbow, the ends of the musculo-spiral nerve, imbedded in dense fibrous tissue, were dissected out and found to be two and a half inches apart. Two inches of the fractured ends of the bones were sawn off and fastened with silver wire. A No. 2 silk ligature was inserted through the body of the nerve, half an inch from ends, and tied (tension suture). The freshened ends were then sutured with No. 1 silk. Some of the subjacent tissue was brought up between the nerve and the bone to prevent involvement by callus. Two months later there was no sign of bony union, and arm was encased in plaster from shoulder to wrist. Two months later, no union having occurred, it was decided to attempt union with a silver-plate (two inches long, one inch wide, rectangular, slightly curved in its width, with an oblong piece taken out of its centre to allow room for the callus. At each corner is a hole for a screw, with two other holes on each side for silver wire, which is passed around each fragment, about half an inch from each end and twisted to further bind the plate in position). Wound was packed with gauze and whole arm again encased in plaster of Paris.

In six weeks firm bony union and good movement were obtained. X ray showed plate in position. Movements appeared in fingers, and three weeks later all the movements, even intricate ones as writing, were perfectly attained. Silver plate was removed and wound healed. Since musculo-spiral paralysis leaves the arm useless where it is extensively lacerated, with ends widely separated, in these days of asepsis, the surgeon should not hesitate in resecting bone if necessary.

Discussion: Dr. Wishart also thought the use of silver wire unsatisfactory in non-union of bone, and that the good result was due more to the plaster than the silver plate.

Dr. Powell (Ottawa) had used wire with good results. He desired an explanation of the time taken for the recovery of the function of the nerve.

H. A. Ferguson, (Chicago), thought that treatment by the open method was the best procedure in non-union of bone.

Dr. Atherton spoke of a successful resection of the popliteal nerve in his practice.

Drs. Secord and Howitt also took part in the discussion.

Report of two cases of "Hour Glass Contraction of the Stomach." H. Howitt, M. D., M. R. S. C., Guelph, Ont.

Case I. Miss J. S., aet 36, tall, weight 120 lbs. Family history good.

Previous history. Until 23rd year had excellent health, weighed 160 pounds and was robust. Thirteen years ago she took, while fasting, a large dose of concentrated solution of Epsom salts, which was followed shortly afterwards by an attack of severe gastric distress with distention. Attacks became frequent and severe.

The most important symptoms during the last 3 years were epigastric pain, great distention of stomach and distress in breathing coming on shortly after taking solid food. Attack lasted from 1 to 2 hours. Vomiting was not prominent and when stomach was empty pain was seldom severe. Lately, every 2 or 3 days she had a gastric crisis during which her stomach became greatly distended, causing great agony. There was a tender spot a little below and to left of ensiform cartilage; deep pressure here caused severe pain which radiated to back. Succussion splash present.

Operation. After lavage of stomach a median incision was made from ensiform cartilage to umbilicus. Stomach was brought out of wound. No adhesions present. Pylorus was normal, but situated nearer the pyloric end than the cardiac was an organic circular contraction of the organ. The constricted portion was firm, about $1\frac{1}{2}$ inches wide and of about diameter of a broom handle.

A peristaltic wave was noted which passed from the cardiac orifice to near the structure where it remained stationary a few seconds, it never passed the stricture. Owing to the situation of the constriction, the absence of perigastric adhesions and the fact that there was no abnormal condition of the pylorus, gastroplasty was determined on.

An incision was made in the pyloric pouch and the stricture found to admit only tip of little finger. The incision was then extended transversely across the contracted portion. A large round ulcer was found in the posterior wall of the cardiac portion near constriction. Its floor was scraped, edges pared and mucous membrane closed over it with fine catgut.

Opposite sides of this incision were grasped about their middle and these points separated as far as possible. The incision was now at right angles to its former position. It was closed with three rows of fine silk sutures. Recovery was complete. Eight months later she weighed 170 pounds.

Case II. R. M., aged 72, cook, weight 126 pounds. Family history negative. Had usual symptoms of malignant obstruction of pylorus.

Stomach was exposed, as in case I. It was found to be divided into two pouches by a tight constriction which was situated a little nearer the pylorus than the cardiac end. Contracted portion was hard and nodular, and several nodules were noted in the wall of the organ and along lesser curvature.

Gastro-enterostomy was performed, the jejunum being brought up and united to cardiac pouch with a Murphy button. In two weeks he could take abundant nourishment without any of his former distress, and gained in strength, but his weight never increased more than five pounds. He passed the remaining eleven months of his life in comparative comfort.

Discussion—H. A. Ferguson, (Chicago), and Hadley Williams, (London).

"The Surgical Treatment of Typhoid Perforation of the Bowel." Report of five cases. J. Alexander Hutchinson, M. D., L. R. C. P. & S., Edin.

The first four cases were operated on at the Montreal General Hospital during the last seven years, with fatal results in each.

Case V. E. C., male, age 33, alcoholic. Ambulatory typhoid, admitted to hospital December 30th, 1902. Onset was insidious, and patient was not seen by his physician until a few days before admission. On admission it was considered the disease was in its twelfth day. Temperature 104°. Perforation on thirteenth day. At 3 a. m., seven and a half hours after admission, he developed severe abdominal pain, limited to right side, with rapid fall of temperature and increase of pulse, accompanied by vomiting and diarrhoea, with well marked tenderness and rigidity of right iliac fossa.

Operation within two hours. Free sero purulent fluid and liquid feces found in peritoneal cavity. Large ulcer in ileum, four inches above valve and involving nearly whole circumference of gut with a pinhole opening in centre.

A few hours after the operation, abdominal symptoms had disappeared and during following three weeks the case ran a typical typhoid course. Widal reaction present.

Recovery. Operative technique: oblique lateral incision; ulcer folded in; Lambert sutures of silk. The peritoneal cavity was irrigated with saline solution and abdomen closed, drainage tube being left.

In addition after abdomen was closed, the cavity was filled with saline solution through the rubber drainage tube which was then clamped, retaining fluid within cavity.

Ice bags were applied to abdomen for first few days.

Discussion. Drs. Meek, Powell, Olmsted, Secord, Atherton.

TUESDAY EVENING, AUG. 25TH.

President's address—W. H. Moorhouse (London.)

"The Role of Eyestrain in Civilization and Medicine"—Geo. M. Gould, Philadelphia.

"A lantern lecture on the Open Air Treatment of Tuberculosis"—
J. H. Elliott, Gravenhurst.

"Municipal Sanitaria for consumptives"—E. J. Barrick, Toronto.

MORNING SESSION—AUG. 26TH.

Visit to Hospitals.—The operating theatre at Victoria Hospital was crowded. Dr. A. H. Ferguson (Chicago) removed a cystic adenoma of the thyroid in a female patient aged 46. He made a transverse incision, split the muscles vertically and enucleated. During the operation Dr. Ferguson discussed the various steps and the complications. He advised operation in patients over 40 where gland was enlarging, because of its tendency to malignancy. He next operated on a left inguinal hernia by his own method, which he considered superior to the Bassini operation.

The principal point was stitching the internal oblique muscle to Poupart's ligament, thereby forming a new attachment which, in the majority of normal cases, is always attached to a much greater extent than it is in those suffering from inguinal hernia.

Dr. McGraw (Detroit) demonstrated his method of performing gastro-enterostomy by the elastic ligature on two cases of carcinoma of stomach.

Whereas formerly the needle and ligature were separate, they can now be obtained fastened together by an improved method which assists greatly its passage through the alimentary walls.

Dr. McGraw said that gastro-enterostomy was devoid of risk and very successful as far as the operation was concerned. Death was not due to the method but to the fact that patients came too late for treatment.

General Meeting.—Nomination of Nominating Committee.

Ont.—J. C. Mitchell, J. H. Cameron, F. R. Eccles, Gunn, Herald Powell, Sir J. Grant.

Que.—McPhail, Armstrong, Hutchinson.

N. B.—Atherton.

N. S.—DeWitt.

Man.—H. Chown.

N. W. T.—T. A. Patrick.

B. C.—James Gibbs.

Medical Section.

"Fresh Air vs. Disease."—G. E. DeWitt, Wolfville, N. S.

The medical profession are bringing about great changes by promulgating sanitary laws, encouraging building of sanitaria and advocating open air treatment of phthisis. Pure air is essential in treatment of the sick.

Germs are more active in warm air.

In treating tuberculosis pure air acts on muscle and strengthens tissue resistance; the two main factors in preserving and producing

heat are clothing and metabolism. He believes in getting his cases of fever and rheumatism into the open air as soon as possible.

Discussion. Sir James Grant (Ottawa) Dr. Aylesworth (Callingwood) and Dr. Johnston (Toronto) took part.

"The Country Doctor"—J. S. Sprague (Stirling.)

Discussion. Dr. Mitchell (Toronto) Mann (Renfrew) Hunter (Toronto) Butler (Alma, Mich.)

"The Inter-relations of Diabetes and other Constitutional States."—Geo. F. Butler, Alma, Mich.

Discussion. Sir James Grant spoke of our lack of knowledge regarding sugar in the system.

Dr. Gould (Philadelphia) warned against confusing glycosuria with diabetes proper and of the need of the medical profession taking up the question of diabetic bread and flour.

"The Cardiac Complications of Influenza."—E. G. Wood, M. D., Professor of Medicine, University of Nashville.

He divides them into (a) organic changes in the heart, (b) functional disturbances of the heart.

(A) Organic changes in the heart.

I. Pericarditis—Primary or secondary to pneumonia or pleurisy. Purulent effusion is common and myocarditis is often associated.

Clinically there are two types (a) symptoms similar to those presented by pericarditis due to other causes (b) latent type.

II. Endocarditis—Usually secondary to pneumonia and affects left heart. May be simple, which rarely gives rise to valvular lesions, or malignant, which usually appears during convalescence.

III. Myocardial Changes—Bacillus of influenza manufactures a poison which acts as a powerful heart depressant and causes degeneration of cardiac muscle fibre.

Usually noted when patient begins to exercise; manifested by palpitation, dyspnoea, weakness and syncope.

Sternal oppression, palpitation, dyspnoea and pallor should lead us to examine heart carefully.

A small feeble pulse, a feeble first sound with weakening of second sound, a weak cardiac impulse with increased deep dullness are suspicious of myocarditis with dilatation.

Muffling of the heart sounds and appearance of a blowing murmur announce endocarditis.

(B) Functional disturbances—Due to action of influenzal poison on the cardiac nervous mechanism.

(1) Palpitation.

(2) Irregular action of heart.

(3) Bradycardia, most dangerous.

(4) Tachycardia, commoner than bradycardia.

Discussion. Dr. Samson warned against the use of coal tar products in influenza.

Dr. McPhedran thought that the coal tar products had their proper place. He had not seen any organic cardiac cases.

Dr. McCallum believed in administering strychnia and digitalis.

Surgical Section.

"Thrombosis of the Femoral Vein following an Aseptic Laparotomy."—Paper by E. R. Secord, Brantford.

Discussion. Drs. Olmsted and J. H. Cameron.

Paper by Dr. Olmsted (Hamilton) on "Gastro Enterostomy with Report of Cases."

Discussion. Dr. Howitt (Guelph) and Carstens (Detroit.)

AFTERNOON SESSION—AUG. 26TH.

Address in Surgery—H. A. Ferguson (Chicago.)

Medical Section.

Dr. McCallum presented a case of adherent pericardium.

Dr. Dickson (Toronto) exhibited the Finsen light.

Dr. Benedict (Buffalo) read a paper entitled "Multiple Visceral lesion."

Dr. McPhedran gave the history of an interesting nervous case.

Dr. Hodge showed two cases of muscular dystrophy.

Surgical Section.

Paper—"The Relation between the General Practitioner and the Specialist in regard to the treatment of Intra-Nasal Disease."

Unfortunately, in the past, the sense of smell has too often been considered the only great function of the nose, and its respiratory function has been forgotten. The triple functions of the nose, purifying, heating and saturating the air of respiration are now well known. In a normal nose, the two nasal passages should be nearly equal in size and potency, the septum should be nearly straight, the turbinal bones should stand straight from the septum, leaving an open chink, the passages should be free of accumulated secretions, and nasal breathing should be efficient.

If the treatment required can be done by the family physician, he should do it. Every doctor should be familiar with rhinoscopy, anterior and posterior. The instruments required are head mirror, throat mirrors, nasal speculum, scissors, cotton applicators, tongue depressor, saws, snares, insufflators and atomizers. The most satisfactory treatment for atrophic rhinitis is first to spray the nasal chambers freely with Dobell's solution, then to wash out from behind with hot water by means of a post nasal syringe at a temperature of 100° F. Applications may then be made with a cotton carrier, and treatment ended by syringing with albolene. Many cases of catarrh can be satisfactorily treated by the general practitioner.

Regarding operations which the general practitioner may do safely. Small spurs can be removed with the saw, nasal polyps may be

removed with cold snare. Antrum of Highmore may be drained Dr. Brown warns against use of galvano-cautery, except in skilled hands. Turbinectomy and the removal of fibromata or sarcomata from the nose should be left to the specialist.

Dr. Wishart (London) showed a case of dislocation of the elbow treated by open incision.

MORNING SESSION—AUGUST 27TH.

General Meeting—The following report of the nominating committee was adopted:

PRESIDENT:—J. S. Tunstall, Vancouver, B. C.

VICE-PRESIDENTS.

| | PROVINCIAL SECRETARIES |
|--|-------------------------------|
| P. E. I.—S. R. Jenkins (Charlottetown) | A. E. Douglas (Hunter River.) |
| N. S.—Geo. E. DeWitt (Wolfville.) | C. D. Murray (Halifax.) |
| N. B.—Dr. Blair (St. Stephens.) | Dr. Crawford (St. John.) |
| Que.—F. G. Finley (Montreal.) | A. McPhail (Montreal.) |
| Ont.—A. McPhedran (Toronto.) | J. Olmsted (Hamilton.) |
| Man.—J. McArthur (Winnipeg.) | W. Rogers (Winnipeg.) |
| N. W. T.—T. A. Patrick (Yorkton, Ass.) | Dr. Love (Regina.) |
| B. C.—R. L. Fraser (Victoria.) | W. Bryton Jack (Vancouver.) |

General Secretary—Dr. George Elliott (Toronto) re-elected.

Treasurer—Dr. H. B. Small (Ottawa)

Executive—Dr. W. J. McGuigan } (Vancouver.)
Dr. Lefevre }
Dr. Gibbs (Victoria.)

It was agreed that a committee be formed in Toronto to invite the British Medical Association to hold their meeting there in 1905.

The next meeting of the Canadian Medical Association will be held in Vancouver, 1904.



Personals.

Dr. H. V. Pearman, of this city, has resumed practice, after an absence of nearly six months in London and Vienna.

Dr. D. G. J. Campbell is doing post-graduate work at Johns Hopkins University, Baltimore.

Dr. W. T. M. McKinnon, who recently graduated at Toronto, has begun practice at Amherst.

Dr. E. E. Dickey, a recent graduate of Dalhousie, has located at Wolfville.

Dr. J. A. MacKenzie, assistant superintendent of the Nova Scotia Hospital, was married on the 12th inst. to Miss Mabel Gentles, of Dartmouth.

Dr. A. M. Hebb, of Chester, and **Dr. Clara Olding**, of St. John, were united in marriage on the 14th of October.

The News extends its heartiest greetings to the happy couples.

Obituary.

Dr. R. B. Shaw.—The death of Dr. R. Bruce Shaw, of Charlottetown, took place at the Massachusetts General Hospital, Boston, on September 7th.

Dr. Shaw left home on the 28th of August for a trip to Boston, and while in that city was taken ill with appendicitis. He was removed to the Massachusetts General Hospital and operated upon on the 31st of August, but general peritonitis supervened and notwithstanding the best medical skill, he died on the 7th of September.

Dr. Shaw was a son of Mr. Wm. Shaw, of Covehead, P. E. I. He was a graduate of Prince of Wales College, where he graduated with honors. His medical course was taken at McGill University, where he passed with honors and subsequently was appointed house surgeon at the Royal Victoria Hospital. He then began practice in Charlottetown, where he proved himself skilful in his profession and popular among his confreres. His sudden demise at the early age of thirty-five years was indeed a great shock, not only to his family, but to the whole community in which he was so highly respected.

He leaves a widow, daughter of Benjamin Rogers, Esq. To the sorrowing relatives the News extends its sincere sympathy in their sad bereavement.

Book Reviews.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and especially prepared Original Articles by leading members of the medical profession throughout the world. Volume I, Thirteenth Series, 1903. Published by J. B. Lippincott Company Philadelphia; Canadian Agent, Charles Roberts. 1524 Ontario Street, Montreal.

Many times have we referred to the high standard of the CLINICS, and we can only reiterate our pleasure in perusing each volume as it reaches our sanctum. We thought the climax had already been reached, but for interest and profit the volume before us eclipses any heretofore reviewed.

"Aneurism of the Descending Thoracic Aorta," by Dr. Wm. Osler occupies forty pages of most profitable reading, in which are given a series of cases, while a number of plates and figures more fully elucidate the text. Dr. T. E. Satterthwaite, of New York, explains in clear language "Nanheim Methods in Chronic Heart Disease with American Adaptations." Fifteen plates are shown to illustrate the steps of procedure. "The Enduring Results of Total Bilateral Resection of the Cervical Sympathetic in Basedow's Disease," is by Dr. Thomas Jonnesco, of Bucharest, whose experience has greatly interested observers in the surgical treatment of exophthalmic goitre. The good results obtained are well shown in the plates accompanying the article. "A Review of the Progress of Medicine During the Year 1902," by Drs. E. W. Watson and H. W. Cattell, comprises nearly 100 pages. Recent therapeutic remedies are likewise referred to and also some of the later methods in operative work. This very valuable contribution is splendidly illustrated by numerous plates and figures. Space will not permit us alluding to many other articles of merit. The editors and publishers can well be commended for their valuable work.

A NEAT PAMPHLET. The Lactoglobulin Company, of Montreal, have recently issued a very neat little booklet setting forth the value of indications for a new proteid food, lactoglobulin. A number of excellent and practical points are included and we would commend its pages to the consideration of our readers. The booklet is attractively gotten up, the cover being especially artistic.

Notes.

THE SCARCITY OF COD LIVER OIL.—It is doubtful if the condition created by the present great scarcity of cod liver oil find a parallel in the history of medicine. That an article of such wide popularity and general use as cod liver oil should become so scarce and high in price is an incident that gives rise to serious thought. Never before, perhaps, has it been so clearly shown how great the constant demand is for this product. From all parts of the country come urgent inquiries regarding the outlook in the near future and in some sections it is almost impossible to get the pure oil at any price. This famine in cod liver oil, if continued for any length of time, might easily result very seriously. There are thousands of people, young and old, who use this oil continually and whose health depends upon it. To deprive them of cod liver oil for even a short period would be to deprive them of a very valuable life food, and as there is nothing to take the place of cod liver oil the seriousness of a prolonged famine can be better

imagined than described. It is a source of satisfaction to know that Scott's Emulsion will bridge the temporary scarcity of pure oil and will keep this valuable article within the reach of every one who needs it. It is not alone dangerous but unnecessary to experiment with the numerous cheap substitutes for cod liver oil. While Scott's Emulsion is known to be the standard emulsion of cod liver oil, containing only the purest and best ingredients, there can be no excuse for using the cheap, worthless substitutes.

LIFE NOURISHES LIFE—BOVININE.—The origin, evolution and interdependence of the different species of animals are themes ever full of interest.

Waiving all discussion of the origin and evolution of the species, as well as other questions of biology and mythology, it is conceded that man was created "a little lower than the angels," but a great deal higher than the highest of the brute family.

Practically, as declared in Holy Writ, man was given dominion over the beast of the field and the fowls of the air. He cannot cope with the elephant or lion in strength, but he can devise traps and pitfalls in which to capture them. He cannot run with the deer or fly with the eagle, but he can invent explosives swift enough and rifles accurate enough to overtake either of them.

Brain triumphs over brawn; mind conquers muscle. The ponderous elephant obeys the pusillanimous prod of his pigmy keeper, because the prod is wielded by a superior intelligence. Timid philosophers and pessimists indict this fact of supremacy and dominion as a mere opportunity for cruelty. It is nothing of the kind. It is predestination—a part of the original plan.

Throughout the entire length of the chain, the lower orders contribute to the higher. But for this law of interdependence and necessity the progress of the race would have halted years ago, and in its noblest representatives of to-day would rank no higher than the recently discovered "little bushmen" who skulk in the jungles of unexplored Africa.

Life sustains life—it is the law, order and sequence of Nature. Our present knowledge does not enable us to define this mysterious life, but we know how it is nourished. The animal transmutes plant, pulp and seed into assimilable nutriment, dissolves it in a saline fluid (serum) and sends it coursing through the distributing channels of the body. It is free from waste, distilled, refined, perfected by unerring vital chemistry—it is ready for instant use.

Bovinine is this vital fluid, perfectly sterilized and protected from deterioration. In Bovinine the life giving elements that go to sustain and build the body retain all their nutritive integrity, ready for immediate absorption into the circulating medium, that medium through which all degenerative processes are interrupted, all repairs accomplished, all growth induced. There are no artificially prepared foods to be compared with it, since Nature herself compounds, refines and perfects it to her own needs and purposes.

We cannot reiterate it in too strong language that the blood is the sole sustainer of life. It carries, contains and contributes every atom, element and molecule of matter that goes to build, sustain and restore the human body—muscle, nerve or brain, flesh or framework. None of the artificially prepared foods, whatever their names or claims, are thus vivified, vitalized, ready for instant assimilation and transmutation into vital force—into vigorous life.

Bovinine is all this. It is this life nourishing fluid, perfectly pure and preserved from deterioration, fully charged with every nutritive element required to replenish the impoverished current. In short, it is an ideal builder, repairer and nourisher in all conditions where an instantly assimilable nutrient is required.

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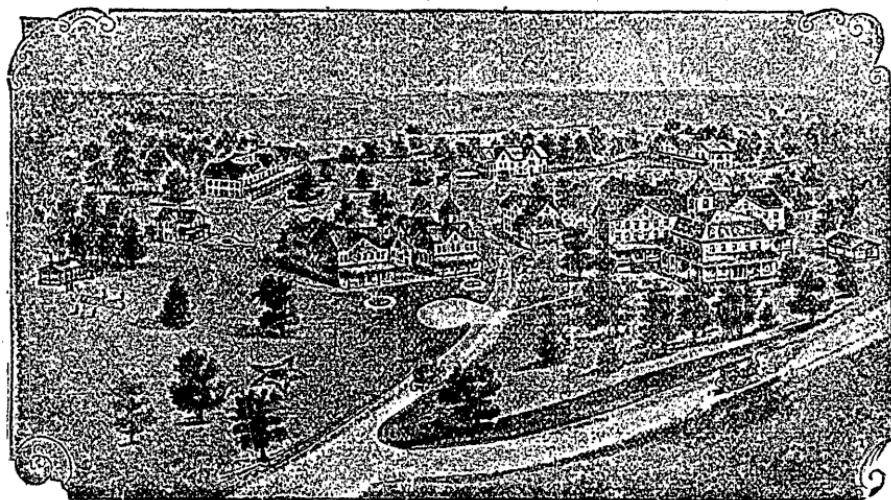
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RIGID OS.—A rigid condition of the cervix uteri is one of the frequent causes of tardy labor, and therefore greatly enhances the dangers of parturition. In most instances this condition is due to a spasmotic contraction of the uterine muscles which is par-

ticularly liable to occur in women of nervous disposition. In these cases Hayden's Viburnum Compound is a well tried and valuable remedy. Its anodyne and antispasmodic effects are strikingly exhibited, the rigid tissues become relaxed, the labor progressing satisfactorily, and the general restlessness of the patient being allayed. A dose of one dessertspoonful, followed if necessary by a teaspoonful every half hour, usually does away with the necessity of dilatation, if there is no mechanical obstacle such as cicatrical tissues or the presence of a tumor.

THE ADVANTAGES OF COMBINING REMEDIES.—John Moir, L. R. C. P. & L. R. C. S. Ed., in "*The Therapist*," London, says:—"Latterly I have been using heroin very extensively in tablet form in combination with antikamnia, and found the combination to act charmingly, both for relieving pain and in procuring comfortable, restful sleep, so very desirable and necessary after sleepless periods, caused by a protracted, irritable cough. The soothing rest in these cases was also characterized by a light but well-marked fall in temperature; but the greatest benefit of all in this treatment is that, although the distressing frequency of the respiration was reduced, it was stronger and heavier and less spasmodic, with a beneficial effect upon the heart at the same time. The tablets I used contained antikamnia 5 grs., heroin hydrochlor, $\frac{1}{2}$ gr., and were given every two, three or four hours, in cases of cough, bronchitis and respiratory affections generally, according to the severity of the symptoms, but usually one tablet every three hours. I found that the respiration was rendered easy, the expectoration was loosened without difficulty, and sleep was more readily obtained than with morphine, and unlike morphine there were no after-effects. I have personally been taking Antikamnia & Heroin Tablets three times a day for an irritating cough, with occasional inclination to breathlessness; so that I have every reason to be thoroughly satisfied with them as sedatives and calmatives."

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Rx Hayden's Viburnum Comp., Original Package
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Aqua. Fervens (Hot Water) ounces iv
Sig.: Repeat every twenty minutes until relieved.
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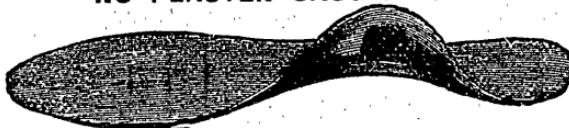


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