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ADDRESS IN SURGERY

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PANCREATIC INFLAMMATIONS IN THEIR RELATIONSHIP TO CHOLELITHIASIS, AND THEIR TREATMENT.

BY

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Mr. President and Gentlemen:

Your kind invitation to give the address in Surgery before the Canadian Medical Association, accompanied as it was by other temptations, especially that of a visit to this delightful and important part of Greater Britain, left me no choice but to accept the proposed honour.

My only difficulty lay in the selection of a subject, but as I have been for some time working on the Pathology and Surgery of the Pancreas, I ventured to think that pancreatic inflammations in their relationship to cholelithiasis might prove of sufficient interest and importance to engage your attention. If my surmise falls short of my wishes and of your expectation, I must before-hand crave your forgiveness.

Among the many complications of gall stones, pancreatitis in its various forms is now known to be one of the most important, though the relationship has only comparatively recently been recognized. The bile ducts and the pancreas are so intimately related in their development and their anatomy that it can excite no surprise to find them frequently associated in their diseases; and though we frequently find cholelithiasis without pancreatic troubles, it is much less common to have inflammation of the pancreas, whether acute, subacute or chronic, without finding common duct cholelithiasis. The reason for this association is not far to seek; it is due to the junction of the common bile duct and the duct of Wirsung at the ampulla of Vater and their common opening into the duodenum, a channel always containing organisms ready under certain circumstances to invade and become virulent.

Pancreatitis is probably always a secondary disease and usually de-

pendent on infection spreading from the common bile duct or duodenum. It may be asked, if common duct cholelithiasis and pancreatitis are so often associated, why should some cases of common duct obstruction go on for months or years without the pancreas participating?

As I shall hope to show by lantern slides and by clinical evidence, the explanation of the presence or absence of pancreatitis as a complication of cholelithiasis is an anatomical one, though the degree of inflammation when infection does occur, is in a great measure a vital process, dependent on the powers of resistance of the individual.

I must ask you to excuse me for taking you back to the dissecting room for a few minutes, as though doubtless you are well acquainted with the normal anatomy of the pancreas, there may be some who are unacquainted with the great number of variations that may be encountered; which varieties may save a patient from or may commit him to pancreatitis should he be unfortunate enough to suffer from common duct cholelithiasis.

The common bile duct starting by the junction of the cystic and hepatic duct courses along the free border of the lesser omentum associated with the portal vein and hepatic artery, it then passes behind the first portion of the duodenum and soon comes into relation with the pancreas, which it either grooves deeply or passes through or behind, before it pierces the wall of the second part of the duodenum, where it empties into the diverticulum of Vater along with the duct of Wirsung. It may be divided into four portions—

- (a) The supra-duodenal portion.
- (b) The retro-duodenal portion.
- (c) The pancreatic portion.
- (d) The intra-parietal portion.

The latter two only are important for our present purpose.

If the choledochus passes behind and not through the head of the pancreas the duct may escape pressure when the pancreas is congested or otherwise swollen; whereas if it pass through the gland, any congestion or swelling of the pancreas will, by pressing on the common bile duct, bring on jaundice with its various sequelae. Thus is explained to my mind many of the cases of so-called catarrhal jaundice, which may come on as an extension from gastro-duodenal catarrh, or in the course of a pneumonia, or during typhoid fever, influenza and other ailments, and which I believe to be often dependent on catarrhal inflammation of the pancreas leading to pressure on the bile ducts. In some cases I have proved this hypothesis to be correct at operations undertaken for chronic jaundice.

As the duct is completely embraced by the pancreas in 62 per cent. of all cases, we may conclude that in nearly two-thirds a swelling of the head of the pancreas will produce jaundice; and, curiously, this percentage coincides with Dr. Cummidge's and my clinical observations and pathological investigations on the urine of pancreatic cases.

Not only so, but when the head of the pancreas embraces the common bile duct, should a gall stone pass down, it will almost certainly exercise pressure on the gland, and thus directly interfere with its function and with the discharge of its secretion.

The fourth portion is where the duct enters the wall of the second part of the duodenum and ends in the ampulla of Vater, into which small cavity the duct of Wirsung also debouches. This part of the common duct comprises all that portion of the canal contained in the thickness of the wall of the duodenum. It passes obliquely through the muscular coat of the intestine, and then dilates into a little reservoir underneath the mucous membrane, into which the main pancreatic duct also opens. This is known as the ampulla of Vater. This ampulla, a little oval cavity, may be well seen in a section of the wall of the duodenum in the axis of the common duct. The opening of the common duct is above that of the pancreatic duct, and the two are separated by a little transverse fold of mucous membrane. The ampulla measures from six to seven millimetres in length, and from four to five in breadth, and with the termination of the two ducts, is surrounded by a thin layer of unstriped muscular tissue, forming a sphincter (Oddi).

The ampulla opens into the duodenum by a little round or elliptical orifice, which is the narrowest part of the bile channel. It is important to note that the length of the diverticulum of Vater may vary from zero to 11 millimetres, the average being 3.9 millimetres, according to Opie, who measured 100 specimens. Viewed from the interior of the duodenum, the ampulla forms a rounded eminence of the mucous membrane, known as the *caruncula major* of Santorini, the opening being seen at the apex of the caruncle. It is distant 8 to 12 centimetres from the pylorus. Above it there is constantly found a small fold of mucous membrane, which must be raised in order that the caruncle and its orifice may be clearly seen. Running downwards from the caruncle is a small vertical fold of mucous membrane, known as the *frenum carunculæ*. Above the *caruncula major* is found a smaller eminence, the *caruncula minor*, marking the termination of the accessory pancreatic duct, or duct of Santorini, which opens into the duodenum about three-quarters of an inch above the biliary papilla.

The mode of formation of the ampulla of Vater and the termination

of the common and pancreatic ducts are liable to great variations. Letulle and Nattan Lorrier distinguish four types, to which may be added a fifth, recently shown by a dissection now in the Hunterian Museum.

The first type is the classical one, which is described above. In the second type the pancreatic duct joins the common duct some little distance from the duodenum, the ampulla of Vater is absent and the duct opens into the duodenum by a small flat, oval orifice. In the third type the two ducts open into a small fossa in the wall of the duodenum, while the caruncle and the ampulla of Vater are absent.

In the fourth type the caruncle is well developed, but the ampulla is absent, the two ducts opening side by side at the apex of the caruncle.

In the fifth type, the common bile duct opens along with the duct of Santorini, and Wirsung's duct enters the duodenum separately.

It will be readily understood that, under ordinary circumstances, when a gall stone passes along the common bile duct and reaches the ampulla of Vater, it will not only occlude the bile passages, but also the chief excretory duct of the pancreas, the secretion of which will be retained. Should infection occur, pancreatitis becomes inevitable, and on the condition of the individual as well as on the nature of the infection will depend what occurs, whether a mild catarrh of the pancreatic ducts, an interstitial pancreatitis, an extremely serious suppurative catarrh or a parenchymatous inflammation in the shape of acute pancreatitis.

Opie, finding in one case a very small gall stone and a large ampulla of Vater, constructed a pretty theory, which is probably true in some rare cases, as in the one reported from Dr. Halsted's clinic in the Johns Hopkins Hospital, and in another case that occurred in Buffalo, which was mentioned to me by my friend, Dr. Roswell Parke, but which, I believe, has not yet been reported. Opie says that under these circumstances the bile and pancreatic ducts are converted into one direct tube, as shown in the diagram, and that the bile being forced into the pancreatic duct sets up acute pancreatitis.

He appears to think that pure non-infected bile is capable of doing this, and he has apparently demonstrated the possibility by experiments on animals. For my own part I believe that infection is the important factor, and that the bile is simply the conveyor of infection.

That this anatomical arrangement described by Opie is not necessary in order that acute pancreatitis may develop is shown by cases reported where no gall stones were present, and by an instructive case under the care of Dr. Fison, of Salisbury, where at the autopsy of a fatal acute pancreatitis a gall stone was completely filling the ampulla of Vater,

and occluding both the bile and pancreatic ducts. It will be seen that, while the normal termination and the second variety of termination of the ducts will favour the onset of pancreatitis in case of common duct cholelithiasis, the variations 3 and 4 in which the two ducts are separate will possibly save the patient from the serious secondary pancreatic troubles, and in variation 5 a small portion of the gland only will become infected.

But the pancreatic ducts themselves are also subject to great variations that may influence the course of events. The beautifully dissected specimen from the Hunterian Museum, a photograph of which I throw on the screen, and the X ray photograph of Wirsung's duct injected with mercury, also shown, demonstrate the normal anatomy of the pancreatic ducts, and show how the lobules have each a separate duct that opens into the main channel or duct of Wirsung, which itself opens into the ampulla of Vater, or directly into the duodenum, as described; but it will also be noticed that a smaller channel, the duct of Santorini, usually discharges some of the secretion of the pancreas directly into the duodenum, and that in a certain proportion of cases the two ducts communicate.

The diagrams I now point out will explain this. They show the result of observations by Opie on 100 cadavers, in which the ducts were injected and photographed, with the following results.

In 90 specimens the two ducts are united; in 10 two wholly independent ducts enter the intestine.

(1) Of the ducts in anastomosis.

1. Duct of Wirsung larger in 84
 - (a) Duct of Santorini patent in 63.
 - (b) Duct of Santorini not patent in 21.
2. Duct of Santorini larger in 6.
 - (a) Duct of Wirsung patent in 6.
 - (b) Duct of Wirsung not patent, 0

(2) Ducts not in anastomosis in 10.

- (a) Duct of Wirsung larger in 5.
- (b) Duct of Santorini larger in 5.

In 89 per cent. the duct of Wirsung was larger than the duct of Santorini. In 21 per cent. the duct of Santorini was apparently obliterated near its termination. In six cases the duct of Santorini was larger than the duct of Wirsung. In all cases where the duct of Santorini is patent it diminishes in size towards the duodenum. Thus the duct of Santorini cannot be relied on in many cases to supplement

the duct of Wirsung, if it be obstructed; moreover, the duct of Santorini, even if patent and communicating with the duodenum, may itself be compressed by a moderate sized gall stone, passing down the pancreatic portion of the common duct. Now, it might be argued that if the two ducts communicate, why should not the duct of Santorini act as a safety valve to the duct of Wirsung when it is compressed and thus free the pancreas from the retained secretion which is in danger of becoming septic.

It will be seen that in only half or less than half of all cases will the duct of Santorini act as a safety valve if the duct of Wirsung is obstructed, for although in 63 per cent. of cases the duct opens at the same time into the main channel and into the intestines, yet in probably less than half of these is the anastomosis efficient as a through channel.

The reasons why gall stones in the common bile duct do not always produce pancreatic inflammation are—

- (a) Some gall stones are so large that they never reach the pancreatic portion of the duct, but remain in the supraduodenal portions of the common duct, producing jaundice but no pancreatitis.

The following is an example:—Mr. S.—, aged 65, had for two years been subject to occasional attacks of epigastric pain. In January, 1903, a severe attack was followed by jaundice, since which time he had rapidly lost weight, and the jaundice had never disappeared. Pain after food had been a marked feature. He had neither vomited blood nor had malaena. There was no dilatation of the stomach and no evidence of tumour. The recti were rigid. He was seen by a well-known physician, who diagnosed cancer of the pancreas. An examination of the urine, however, showed an entire absence of pancreatic crystals, proving the absence of cancer and of inflammation of the pancreas. An operation was performed on November 24th, 1903, when a gall stone the size of a filbert was discovered in the supraduodenal portion of the common duct and removed through an incision, which was afterwards sutured. The pancreas appeared normal. The gall bladder was drained. Recovery was uninterrupted, and the patient is now well.

- (b) In some cases the bile ducts and pancreatic ducts open by separate orifices, as shown in the illustrations, and any gall stone passing down the common duct will then not necessarily compress or occlude the pancreatic duct.
- (c) In exceptional cases the duct of Santorini is the principal outlet for the pancreatic fluid, it being of such a size as to afford a safe outlet to the secretion even when the duct of Wirsung is obstructed.

In order to make the relationship between gall stones and inflammation of the pancreas quite clear, I shall give the classification of pancreatitis that I recently proposed in the Hunterian lectures, which, I believe, includes all the varieties. Pancreatic inflammation may be catarrhal, in which the inflammation trouble is in the ducts, or parenchymatous, in which the substance of the pancreas is involved. The former resemble the different forms of cholangitis, with which, indeed, they are frequently associated; the latter bear more resemblance to inflammatory affections of the appendix, "suppurative and gangrenous appendicitis." The following shows the classification at a glance:—

Catarrhal Inflammations:—

- (a) Simple catarrh, acute and chronic.
- (b) Suppurative catarrh.
- (c) Pancreo-lithic catarrh.

Parenchymatous Inflammations:—

Acute:

- (a) Hæmorrhagic pancreatitis.
 1. Ultra-acute, in which the hæmorrhage precedes the inflammation, the bleeding being profuse and both within and outside the gland.
 2. Acute, in which inflammation precedes the hæmorrhage, which is less profuse and is distributed in patches through the gland.
- (b) Gangrenous pancreatitis.
- (c) Suppurative pancreatitis (diffuse suppuration).

Subacute:

Abscess of the pancreas (not diffuse suppuration).

Chronic:

- (a) Interstitial pancreatitis.
 1. Interlobular.
 2. Interacinar.
- (b) Cirrhosis of the pancreas.

Although in my address to-day I am only dealing with one cause of pancreatic trouble, yet it is the chief one, and in a very large percentage of cases the only cause of pancreatitis in its various forms; but in order to make the position clear, I will relate the other etiological conditions.

The etiology of pancreatitis may be classified under predisposing and exciting causes. Among the predisposing causes are:—

- (a) Obstruction in the ducts, the result of gall stones, duodenal catarrh, pancreatic calculi, cancer of the papilla or of the head of the pancreas, ulcer of the duodenum, followed by cicatricial stenosis of the papilla, ascarides and lumbrici.
- (b) Injury either from a bruise as by manipulation in operating, or from a crush, as by a blow in the epigastrium, or from wounding by a sharp instrument.
- (c) Hæmorrhage into the gland.
- (d) General ailments, such as typhoid fever, influenza and mumps.
- (e) Certain anatomical peculiarities in the pancreas or its ducts.
- (f) Atheroma or fatty degeneration of the blood vessels.
- (g) New growth, e.g., cancer or sarcoma.

The chief exciting causes are:—

1 Infection conveyed—

- (a) From the blood as in syphilis or pyæmia.
- (b) From the duodenum, as in gall stone obstruction or gastrointestinal catarrh.
- (c) By extension inwards from adjoining organs as in gastric ulcer or cancer eroding the pancreas.

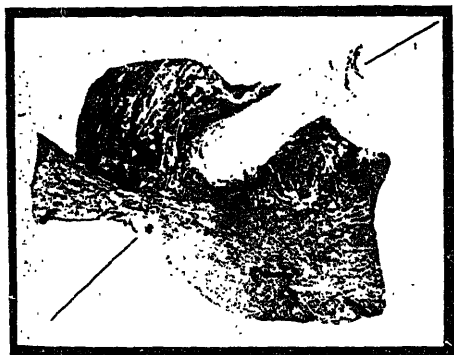
2. Irritation as in alcoholism (doubtful).

So long as the concretions remain in the gall bladder or cystic duct it is unlikely that the pancreas will participate in the cholecystitis, unless the gland has been originally infected from the duodenum, as possibly occurring in the following case:—In this case, gall stones in the gall bladder were associated with catarrh of the pancreas, which must have either been due to an extension of the catarrh of the gall bladder and bile ducts to the pancreas, or have resulted from the passage of a gall stone from the common duct on some further occasion, which had led to infection both of the bile and pancreatic ducts. A lady, aged 50, had for several years suffered from attacks of distinct biliary colic, which during the past two months had been followed by jaundice, fever and collapse. There had recently been loss of flesh. On examining the urine, fine pancreatic crystals were discovered, and at the operation on April 30th, 1903, forty gall stones were removed from the gall bladder and cystic duct. None were found in the common duct, though the head of the pancreas was distinctly swollen and harder than normal. The gall bladder was drained. The patient made a good recovery and is now well. Normal weight has been regained, and there is no longer any evidence of disturbed metabolism.

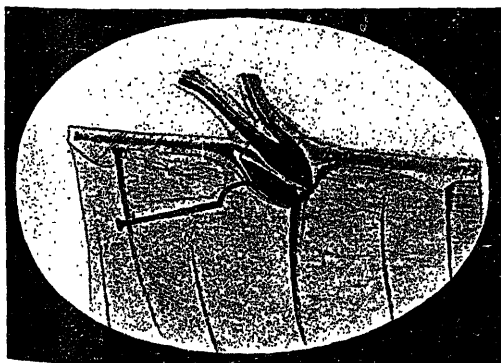
Even if gall stones pass into the common duct and are not long



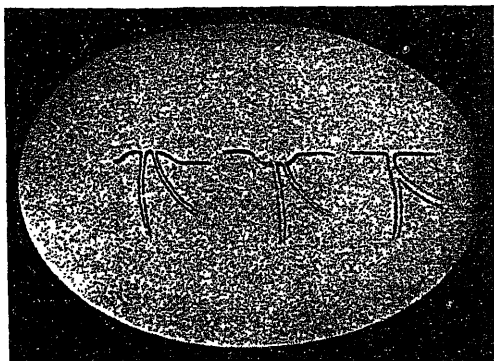
I. Diagram to show the Common Bile Duct passing through the Head of the Pancreas, a portion of which is reflected. (Viewed from behind.)



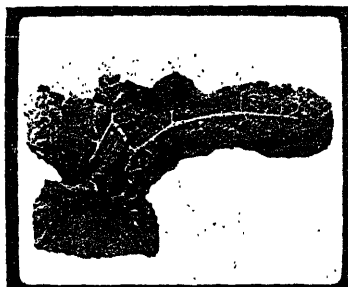
II. Photograph from specimen in St. Thomas' Museum to show gall-stone impacted in the Pancreatic portion of the Common Duct and exercising pressure on the Pancreas.



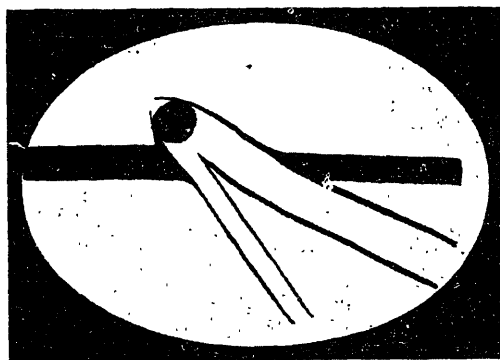
III. Ampulla of Vater.



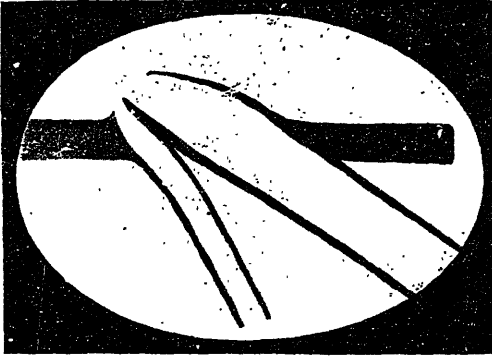
IV. Diagram to show the 2nd, 3rd and 4th variations in the termination of the bile and pancreatic ducts and the duodenum.



V. Photograph of specimen in the Hunterian Museum, R.C.S., showing the Common Bile Duct joining the Duct of Santorini.



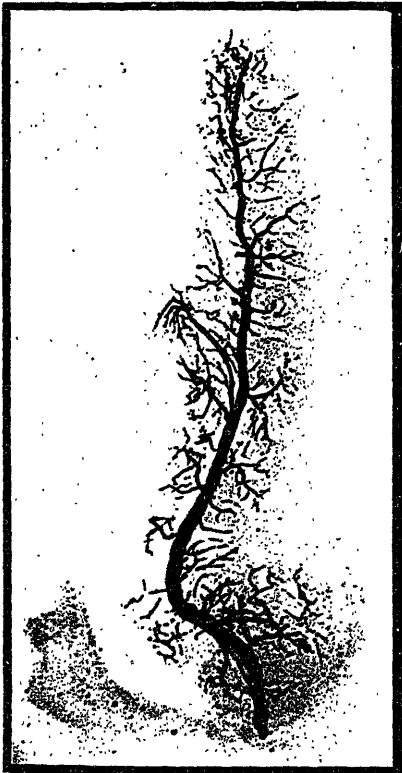
VI. Diagram to illustrate how a small gall-stone may obstruct the papilla, and if the Ampulla of Vater be very large, may convert the common bile duct and the duct of Wirsung into one canal, thus predisposing to acute pancreatitis.



VII. Diagram to show a method of termination of the ducts which would not predispose to pancreatitis.



VIII. Photograph of specimen from the Hunterian Museum, R.C.S., showing the separate lobules of the pancreas with each duct opening into the duct of Wirsung.



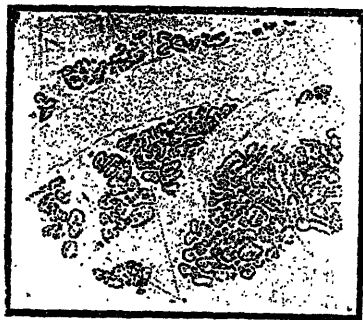
IX. Skiazram of Pancreas after injecting the ducts with Mercury.



X. Diagram to show the variations in the ducts of Wirsung and Santorini. (After Opie.)



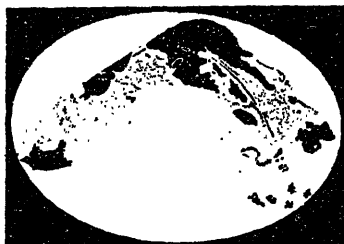
XI. Photograph of specimen showing the result of Pancreo-lithic catarrh, the Duct of Wirsung being converted into a rigid channel, owing to the deposit of lime salts. The orifice of Wirsung's duct is occluded by the same deposit, the duct is dilated and the gland atrophied.



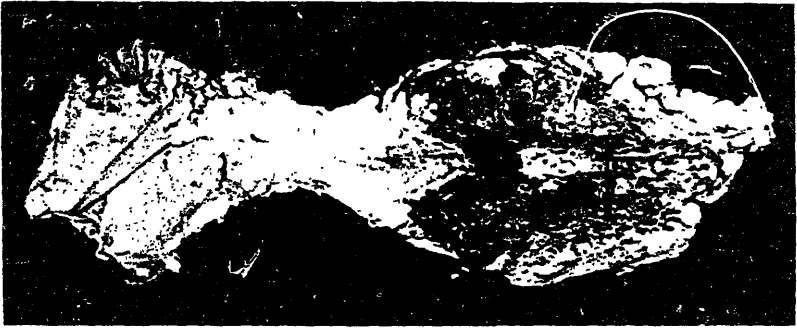
XII. Hemorrhage into pancreas showing how the blood infiltrates and breaks up the gland tissue, setting free the ferments.



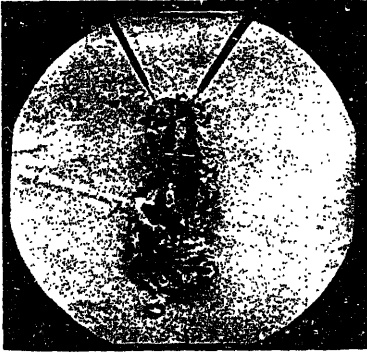
XIII. Specimen from the Leeds Museum showing hemorrhage in the Pancreas producing the ultra acute form of Hemorrhagic Pancreatitis.



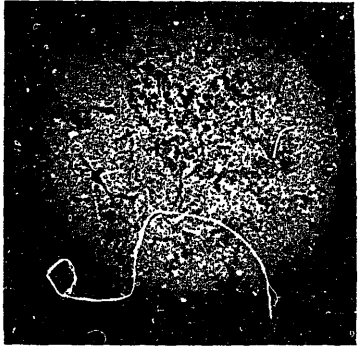
XIV. Acute Hemorrhagic Pancreatitis.



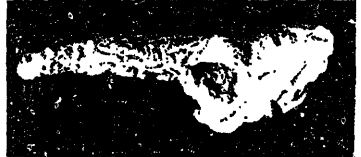
XV. Acute Hemorrhagic Pancreatitis in which inflammation precedes the Hemorrhage.



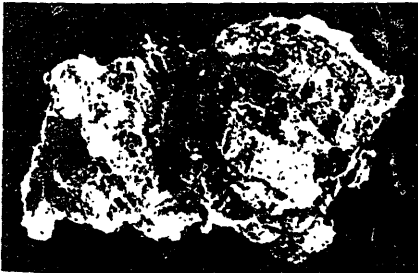
XVI. Acute Hemorrhagic Pancreatitis.



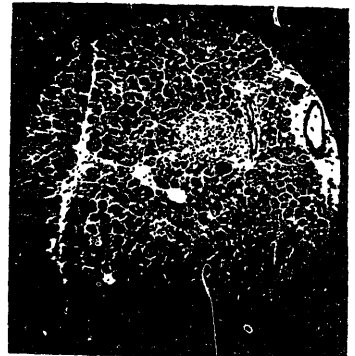
XVIII. Microscopic Section of Necrosed Pancreas.



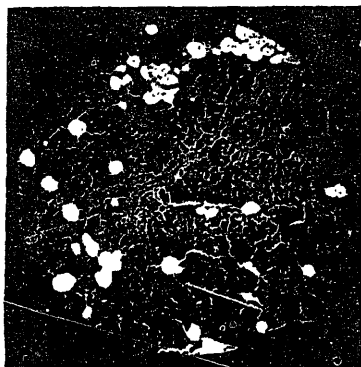
XIX. Abscess of the Pancreas.



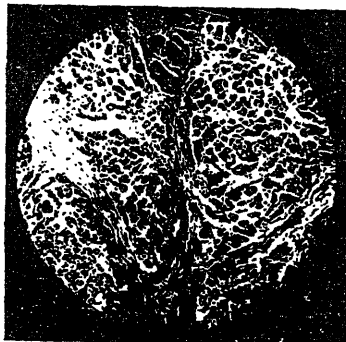
XVII. Slough of Pancreas removed at operation. Recovery.



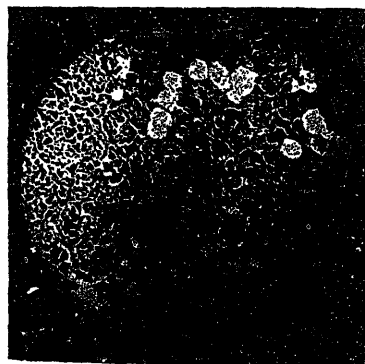
XX. Normal Pancreas. (Shown for purposes of comparison.)



XXI. Catarrh of the Pancreatic Ducts and Incipient Interstitial Pancreatitis. A thrombosed vessel is seen near the centre of the field.



XXII. Interstitial Pancreatitis.



XXIII. Interacinar Pancreatitis ending in Diabetes.



XXIV. Cirrhosis of Pancreas.



XXV. Fat Necrosis. "Transverse colon raised to show region of Pancreas."

detained in it, a catarrhal pancreatitis may supervene, as in the following case:—

A patient, aged 38, after being subject to indigestion for years had biliary colic in July, 1899, and passed gall stones, which were found in the motions. Subsequently the attacks of pain were frequent and severe, necessitating the use of morphia. They were usually accompanied by icterus, which, though slight, probably never quite disappeared. When I saw him in November, 1903, he had lost flesh, and was prevented from carrying on his professional duties. The metabolic and digestive signs of pancreatic catarrh were well marked. At the operation on November 23rd, 1903, no gall stones were found, though the gall bladder was thickened and adherent to contiguous organs. The pancreas was firmer than usual, though not very much swollen. Cholecystotomy led to recovery, though the drainage of the bile ducts had to be continued for three months. The patient is now well.

In this case the pancreatic catarrh had evidently been set up by the passage of gall stones through the common duct. The pancreatitis had, however, persisted, and was not only keeping up painful symptoms, but leading to obstruction of the bile ducts and to interference with nutrition. Now this case would formerly have been called catarrhal jaundice, whereas it was really due to catarrhal pancreatitis, as proved by the digestive and metabolic signs, and later by operation.

I could relate other instances, but this case will suffice to show that pancreatic catarrh may be produced by a passing gall stone, and persist after the cause has disappeared, and that drainage of the bile ducts is followed by cure.

If, after some time, the stone passes, the pancreatic catarrh may subside and leave no trace, or the swelling of the pancreas may persist, become true interstitial pancreatitis, and for a long time keep up pressure on the common bile duct, leading to a persistence of the jaundice, though there is no concretion left to cause obstruction nor any evidence of disease of the liver beyond the jaundice due to mechanical obstruction. Thus may be explained some of the cases of very chronic jaundice with so-called chronic biliary catarrh, a number of which cases I have operated on.

While one would not say that there is no such disease as chronic catarrhal jaundice, I suspect that many cases so designated are really instances of chronic interstitial pancreatitis, in which the common bile duct is compressed by the swollen pancreas. The following case is a good example:—

Mr. H.—, aged 26, had had jaundice since the age of seventeen, it having supervened upon a severe attack of what appeared to be biliary

colic, of which he had had several seizures since the age of fourteen. For two or three years he had had severe ague-like attacks, and during that time he lost very seriously in weight and strength; but during the past two years there had been no rigors, and he had also been free from the severe paroxysms of pain, though he had had slighter seizures, after all of which the jaundice became more intense. The patient was then only weighing 9 stones, and all the bile was apparently passing into the urine and none by the bowels. There was some swelling in the region of the pancreas, besides slight enlargement of the liver and a very decided enlargement of the spleen. Fine pancreatic crystals were found in the urine.

Cholecystotomy was performed on January 31st, 1901, when the gall bladder was found contracted and adherent, and the head of the pancreas enlarged and very hard, but no gall stones were present. For a few days the jaundice was deeper; it then became gradually less until it almost disappeared. In ten days the stools became bile-stained, and had since retained their colour. He returned home on April 16th, having gained nearly half a stone in weight. October, 1901.—After the previous operation the patient was well for some months, except for slight jaundice. Recently there had been a little discharge of bile from the fistula, which he wished to have cured on account of the inconvenience. Cholecystenterostomy was performed on October 3rd, 1901; the sinus was dissected out and the fundus of the gall bladder connected to the transverse colon.

The patient made a good recovery from the operation, and left looking much better. When heard of later he was following his occupation.

If the gall stone causing obstruction be removed by operation from the common duct, and drainage of the infected bile ducts be effected before the catarrhal has passed into the interstitial form of pancreatitis, a complete cure may be expected, as in the following cases:—

1. The patient, a lady, aged thirty-four, had had symptoms of gall stones for four years, and had been under treatment for ulcer of the stomach, but there had been no hæmatemesis. Four months previously jaundice had come on after an attack of pain, since which time the attacks had been frequent, and were always followed by an increase of the jaundice and by rigors and fever. On one occasion the gall bladder was distended; when seen there was a slight tinge of jaundice. She had lost three stones in weight. There was an absence of enlargement of the liver or gall bladder, but marked tenderness over the gall bladder was elicited. Pancreatic crystals were found in the urine, and digestive symptoms were present.

At the operation on April 23rd, 1903, one large calculus was removed

from the cystic duct and some smaller ones from the common duct by choledochotomy through separate incisions in the two ducts. The common duct was sutured and the cystic duct drained. The pancreas was found to be enlarged and inflamed. The patient made a good recovery, and is now well.

Were it necessary, I could give a good many examples, but another will perhaps suffice.

2. The patient, a lady, aged 59, began to suffer from abdominal pain, followed by jaundice and vomiting, 26 years ago, and she had been subject to attacks at longer or shorter intervals ever since. Fifteen years ago she was in bed for three months with constant pain, but never had rigors. A fortnight ago she had a severe attack of pain, followed by jaundice, which persisted. She had lost four stones in weight. There was no enlargement of the liver or gall bladder, but some dilatation of the stomach. Pancreatic crystals were found in the urine. At the operation on March 10th, 1903, a small gall bladder was found containing two gall stones, which were removed and the gall bladder drained. The common and hepatic ducts contained many stones, which were removed through an incision in the common duct. The pancreas was slightly swollen. The patient made a good recovery and remains well.

The explanation of the pancreatitis in these two cases was manifestly the obstruction of the pancreatic duct, with infection of the secretion, but the complete recovery after operation showed that the inflammation was probably only catarrhal and not advanced interstitial trouble.

If the gall stone obstructs the common duct for long, what was at first a simple catarrhal pancreatitis may assume a truly interstitial form, and unless drainage of the bile ducts is continued for some time or permanent drainage in the shape of cholecystenterostomy is established, relapse will speedily occur.

The following case is an example:—Mrs. W.—, aged 57, had had two operations previously in Scotland. On the occasion of the first operation, in September, 1902, a number of gall stones were removed from the gall bladder, which was drained for a few days, but after the wound had healed the attacks had been repeated as before. A second operation was undertaken by the same surgeon without finding anything definite. After the wound had healed and the temporary drainage had ceased, the attacks again returned, and the subsequent history up to the time of my seeing her was that she had almost daily attacks of pain, followed by slight jaundice, and on five or six occasions, usually at intervals of a month, she had had violent seizures, necessitating the use of morphia. About five weeks ago the pain was so violent as to cause her to faint,

and just before coming to London another violent seizure, accompanied by collapse, occurred. A rigor, with high temperature, 104° or 105° , had followed each attack, the temperature between the seizures rising nightly to 101° F. or 102° F. She was rapidly losing flesh and strength. An examination of the urine by Dr. Cammidge showed no albumin or sugar, but well-marked pancreatic crystals, which dissolved in from one to one and a half minutes, rendering, along with other signs, the diagnosis of chronic pancreatitis certain. At the operation on November 20th, 1903, the adhesions were found to be most extensive. There was well-marked enlargement and hardness of the pancreas along its whole length, but it was not nodular. The common duct was carefully examined, but found to be free from concretions, and on opening the gall bladder a probe was passed through it and the cystic and common ducts into the duodenum. While the probe was in position, the pancreas was manipulated and found to compress the duct, thus accounting for the obstruction. Cholecystenterostomy was therefore performed, the union being effected to the colon by means of a decalcified bone bobbin. At the time of operation the gall bladder was separated from its fissure in the liver, in order to make it reach the bowel without tension. For a few days after operation, bile was discharged from the torn liver surface in free quantities, but there was no leakage from the newly joined viscera. As the bile obtained a free passage into the bowel, it gradually ceased being discharged from the liver, and the tube was able to be left out at the end of ten days. The wound healed by first intention, and the patient was up at the end of three weeks. She was then able to take and digest her food, and has since been quite free from her old attacks. If the interstitial pancreatitis has persisted for some length of time, it is possible that recovery may be incomplete, and although the jaundice may disappear and the digestive symptoms may be alleviated, the metabolic signs found in the urine many months, or even years, subsequently show that the recovery is only partial.

The following are examples:—Mr. D.—, aged 45, had had painful epigastric attacks for twelve months, with vomiting but no jaundice. There had been deep jaundice since January 1st, with ague-like attacks, and the patient had lost $2\frac{1}{2}$ stones in weight. Cholecystotomy was performed on March 29th, 1898. Thickened duct felt, together with swelling of the pancreas, thought to be cancer of the head of the pancreas and common bile duct. Drainage of the gall bladder for ten days.

The patient made a complete recovery, and in August was apparently quite well, having gained a stone in weight. He was in good health in 1901. Though apparently well in January, 1904, an examination of

the urine gave the pancreatic reaction and showed that the original damage to the pancreas had not been completely repaired.

Mrs. D.—, aged 46, had had spasms for years. Acute seizure in July and three times since. Since July pain and sickness every two weeks. No tumour felt at any time; jaundiced occasionally after an attack of pain; lost one stone in weight. She had never vomited blood and never had melaena. There was tenderness over the gall bladder, but no tumour. Slight enlargement of the head of the pancreas. Cholecystotomy was performed on December 11th, 1899. Empyema of the gall bladder. Many stones removed from the gall bladder and cystic duct. Adhesions broken down. Nodular condition of the head of the pancreas found. The patient made a good recovery, and was well in 1904, though an examination of the urine showed the pancreatic reaction, and proved that the metabolic functions of the pancreas were still not normal.

In some cases where operation has been delayed or drainage of the bile ducts not performed or not long enough continued, the original interstitial pancreatitis may pass on into the interacinar variety, in which the Islands of Langerhans become involved and glycosuria ensues, as in the two following cases:—Mrs. C.—, aged 51, who was suffering from persistent jaundice, with periodical pains and ague-like seizures that had extended over a long period, was operated on in July, 1895, when several gall stones were removed and others crushed in the common duct. A tumour of the pancreas was felt, which it was thought at the time might be malignant. The gall bladder was therefore drained into the duodenum by a cholecystenterostomy. The patient completely recovered, and has remained well since the operation over nine years ago, but examination of the urine recently by Dr. Cumbridge showed there to be an abundance of dextrose, but no acetone or di-acetic acid. Pancreatic crystals were obtained by the "A" reaction, which dissolved in three-quarters to one minute, but none could be isolated by the "B" method. This showed that although the patient has been relieved by the operation, and has apparently enjoyed good health, yet that she is living with a damaged pancreas and consequent glycosuria.

Mr. D.—, aged 42, had an attack of pain in the right hypochondrium ten years ago, but no jaundice. He had been free from attacks up to six weeks ago, when he had a severe attack of pain in the right hypochondrium radiating to the back and shoulders, accompanied by rigors and vomiting and followed by jaundice. The jaundice had persisted up to the present; no swelling to be felt. An exploratory operation was performed on October 27th, 1898, when a mass, thought to be growth in the head of the pancreas, was discovered. The patient made

a good recovery, with a great relief to the jaundice. I suspect the enlargement of the head of the pancreas was chronic pancreatitis, as it was too soft for scirrhus. I very freely manipulated it to feel if there was a gall stone in the termination of the common bile duct, and this may have dislodged an obstruction, leading to the relief of the jaundice.

A specimen of his urine was obtained in 1904, and although he was reported to be quite well, this was found to give crystals by the "A" reaction, which dissolved in half a minute, and to contain sugar in fair quantity.

This, along with other cases that I know of, leads me to think that it is unwise not to thoroughly drain the bile ducts, and I consider that drainage ought to be continued until the bile becomes free from organisms and its normal route is free from obstruction.

In certain cases, doubtless, recovery occurs without operation, and I have notes of one case where a gentleman of advanced age had deep jaundice associated with glycosuria, and with well-marked pancreatic reaction in the urine, pointing to the case being one of pancreatic diabetes. Under general treatment, combined with massage, he regained his health, and is now said to be quite well. In this case it is quite possible that the massage may have dislodged a concretion which was blocking the common bile duct and the pancreatic duct, but as no search was made in the faeces, this cannot be proved. As the patient lives abroad, we have not been able to test the urine, which, I suspect, will still contain glucose.

This case raises the question whether operation ought to be declined because of the presence of a small amount of sugar in the urine. In future, should the patient's condition be fair, I shall feel inclined to recommend operation in order to remove the obstruction, and by drainage to arrest the pathological process going on in the pancreas.

Suppurative Catarrh.

It is well known that in some cases of obstruction of the common bile duct by gall stones, the infective cholangitis may pass on into suppurative cholangitis, an extremely serious and frequently fatal disease; but until I reported my cases in the Hunterian lectures, I believe it had never been suggested that the same condition may occur in the pancreatic ducts. The termination probably depends both on the vital condition of the individual and on the form of the infection, for in one of my cases streptococci were found in the pus, whereas usually the organism is the *Bacillus Coli*.

The following cases exemplify three different types of suppurative catarrh, which, it will be seen, is an extremely serious, though not

necessarily a hopeless disease if treated early. If the suppurative catarrh be diffuse and involve the ducts throughout the liver and pancreas, the associated septicaemia is very serious, as the following case, seen with Dr. Hector Mackenzie, proves:—

Mr. W.—, aged 65 years, seen on January 4th, 1904. He had had attacks of gall stones seven years before and two seizures during the last two years, both of which were followed by jaundice. His present illness started on November 23rd with severe pain, followed by jaundice. On December 20th a very severe attack of colic was followed by more intense jaundice and enlargement of the liver with irregular temperature. The patient had had albuminuria for seven or eight years. When I saw him there was tenderness above and to the right of the umbilicus, and he had severe pain. A specimen of the urine was examined, and found to give a marked pancreatic reaction (pointing to acute inflammation), and to contain calcium oxalate crystals. On opening the abdomen on January 7th, firm adhesions were encountered, and on detaching the omentum, phlegmonous cholecystitis was discovered, with gangrene of the fundus of the gall bladder; pus escaped freely, but the peritoneal cavity was saved from being soiled by means of sponge packing. The common duct was enormously dilated and embraced by the swollen pancreas, but no gall stones could be felt. On opening the common duct a large quantity of pus and bile escaped. By means of the scoop passed into the common duct and the fingers passed behind the pancreas a number of gall stones were extracted, but a hardness could be felt at the papilla which could not be removed. On laying this open after incising the duodenum, a gall stone was removed from the ampulla of Vater, and pus was immediately seen to flow from the duct of Wirsung. The duodenum was then closed, the gangrenous upper part of the gall bladder was removed and the common duct and gall bladder were drained. The patient bore the operation well, and from that time onward had no more fever, but for the fortnight during which he lived his temperature was persistently subnormal. He had no peritoneal symptoms, and the bowels were moved freely from the second day onward. Calcium chloride had been given before operation, and at the operation he lost no blood. None was given subsequently to operation, as the rectum was intolerant of injections, and on the eighth day there was rather free oozing of blood from the drainage track, which had to be treated by gauze packing, after which the calcium chloride was resumed, and no more bleeding occurred. On the eleventh day the patient became somnolent, and declined to take food. From this time he got gradually weaker, and died comatose on the fourteenth

day in a condition almost resembling that associated with acute atrophy of the liver.

If the suppurative catarrh takes on a very acute form, the development of abscesses in the liver and pancreas may occur, and the condition becomes one of pyaemia, when the chance of recovery will be very remote, as in the following case:—

The patient, a lady, aged 65 years, seen with Sir William Broadbent and Dr. Bousfield, was suffering from deep jaundice, suppurative cholangitis, pancreatitis and parotitis of pyaemic origin; rigors with a temperature of 105° occurring daily or even twice a day, the acute symptoms having come on within a fortnight, though there had been a history of gall stones for years. The common and hepatic ducts were filled with gall stones, which were removed through an incision in the common duct, and a large quantity of extremely offensive pus and bile were evacuated. At the same time the right parotid gland (the seat of inflammation) was incised. The bile was examined bacteriologically, and found to contain the bacillus coli in large numbers; next in numbers were streptococci and another rather fine bacillus, which appeared to grow anaerobically only, and there was a fine spore-bearing organism, probably the bacillus coli putrefaciens. The urine gave a well-marked pancreatic reaction. The patient, who had also heart disease and albuminuria, appeared to be doing well for 24 hours, when she died suddenly, apparently from cardiac thrombosis.

If the suppurative catarrh assumes a subacute form, it may end in a simple pancreatic abscess, which can be successfully evacuated, as in the following cases:—

Mrs. P.—, aged 61, gave the history of having been subject to biliary colic for three or four years, though there had been no jaundice till two and a half years ago, since which time the attacks of pain had always been accompanied by rigors and by deepening of the jaundice. Within a short time of my seeing her, the symptoms had become aggravated, and the loss of flesh had become extreme. The patient was so ill that the question of cancer of the pancreas was raised, but the pancreatic reaction in the urine definitely pointed to inflammation and not to growth. At the operation I found the pancreatic portion of the common duct packed with large gall stones, and the head of the pancreas was markedly swollen. On passing the scoop through the opening in the common duct from the pancreatic portion of the duct, a stone the size of a cherry was extracted, it being covered with offensive pus. This had apparently lodged in a cavity in the head of the pancreas. A profuse discharge of bile and offensive pancreatic fluid with pus con-

tinued to pass for a week, after which the discharge became gradually less. She made a good recovery, and remains well a year later. In general subacute pancreatitis, starting as suppurative catarrh with the formation of a localized abscess, the pancreas may be so damaged that after the abscess has been cured by drainage, the extensive interstitial pancreatitis may ultimately lead to the death of the patient at a longer or shorter interval, as in the following cases:—

Mr. H.—, aged 40, had suffered from continuous fever, with exacerbations associated with rigors, that recurred almost daily. He gave the history of failing health for nine months, and of having gall stone attacks much longer, but the acute symptoms associated with jaundice had only been present for a fortnight before I saw him. The pancreatic reaction was found in the urine. At the operation on October 11th, 1900, he was far too ill to bear a prolonged search, and as the adhesions were very firm, I felt it desirable only to drain the bile ducts through the gall bladder, though a marked swelling of the pancreas made it appear probable that an abscess might be present. A large quantity of muco-pus drained from the gall bladder and a number of gall stones were removed. The abscess of the pancreas discharged through the drainage tube, after which the pancreatic swelling subsided. The patient made a slow though steady recovery, and returned home early in December. Though he was able to get out and to take food, he never fully regained his strength, and died in February of the following year. At the necropsy the pancreas was found to be much enlarged and to be the seat of interstitial pancreatitis. The cavity where the abscess had been was occupied by a little pulpy material, but no further collection of pus was found, nor were any gall stones discovered in the bile ducts. A microscopic examination of the pancreas showed advanced interstitial pancreatitis.

Cirrhosis or Atrophy of Pancreas.

If the infective catarrhal condition persists and does not assume the more dangerous suppurative form, or even if simple obstruction of the pancreatic duct persists from any cause with only mild infection, we may have an almost analogous condition to the one occurring in cirrhosis of the liver, due to the development of fibrous tissue. This more chronic form of interstitial pancreatitis ends in cirrhosis or atrophy of the pancreas, which is probably inevitably fatal from glycosuria. I think it is possible that if it were discovered at an early stage, it might be arrested by the removal of the cause, though, when fully developed, the condition is probably not amenable to any form of treatment.

Acute Pancreatitis.

If a small gall stone happens to descend into an unusually large diverticulum of Vater and to lodge there, it will make a through channel from the common bile duct into the pancreatic duct, and so set up acute pancreatitis, the infected bile being forced direct into the pancreatic duct, as in Dr. Halsted's case, reported in Opie's work on the pancreas.

But the anatomical conditions just mentioned, though evidently potent, are certainly not necessary for the production of acute pancreatitis. Any gall stone or stones impacted in the pancreatic portion of the duct, or even filling the ampulla of Vater, may produce acute pancreatitis as in a case under the care of Dr. Fison of Salisbury (*Lancet*, 1904).

A man, aged 39, had a sharp attack of diarrhoea on March 27th, 1904, having been previously constipated. The next day, about 1½ hours after dinner, he was seized with severe epigastric pain followed by vomiting. At 5 p.m. he looked anxious and ill, and the abdomen was tense and tympanitic, but there was no jaundice. The vomiting persisted. There was tenderness over the gall bladder and to a less degree over the stomach, but no enlargement of the liver or any indication of tumour. Temperature, 98°; pulse, 110.

The next day the temperature was 97° and pulse 120, the vomiting continuing; morphia was given. On the 30th the temperature was 96.8, the pulse 125, small, weak and thready, respiration 36. The pain was easier. Urine scanty and dark. Operation on evening of the 30th, 54 hours after first attack of pain. Very extensive fat necrosis found in subcutaneous tissues and in omentum, mesentery, etc. Large quantity of brown inoffensive fluid in peritoneum. Incision made into tissues around pancreas through meso-colon. Gall bladder drained through another incision, many gall stones removed. Free drainage of abdomen. After recovery from anaesthetic, the vomiting persisted, and the pulse remained absent from the wrist up to death some hours later. At post-mortem examination a pint of bloody fluid in peritoneal cavity. Base of meso-colon filled with friable offensive material, blackish brown in colour, and here and there streaked with pus. Pancreas much swollen and weighed seventeen ounces. Hæmorrhagic infiltration in centre of body and another in tail, consistency very firm, with swelling of lobules. In the cystic duct were three gall stones, in the common duct four, and in the hepatic duct four. One gall stone $\frac{3}{8}$ inches in length completely filled the ampulla of Vater

into which the duct of Wirsung opened one-third of an inch from the papilla. The duct of Wirsung did not contain bile.

Urine sent for examination by Dr. Cammidge showed crystals soluble in $\frac{1}{2}$ minute by the "A" reaction, and a few crystals by the "B" reaction soluble in the same time.

The following is Dr. R. Salusbury Trevor's report of examination of the pancreas:—

The gland is enlarged in all its diameters, the margins being rounded off and producing as a consequence a sausage-shaped contour. In the head, the middle of the body, and the tail are chocolate-coloured areas, which are fairly sharply differentiated from the surrounding parenchyma in which the normal lobulation is visible. The duct of Wirsung is not bile-stained. The portion of common bile duct attached to the head of the gland appears to be somewhat dilated. Around the gland, as well as in it, are numerous typical foci of fat necrosis.

Microscopical Examination.

Sections have been prepared from the head, body and tail in most instances to include the chocolate coloured areas as well as apparently normal parenchyma.

General Features.

The dark coloured areas are due to necrosis of the parenchyma associated with hæmorrhage, and in the sections from the head and tail are demarcated off from the neighbouring gland acini by well-marked zones of inflammatory small-celled infiltration. In the tail section inflammatory reaction is absent, the necrosed areas merging gradually with the unaffected parenchyma. In the necrosed areas the gland parenchyma is only barely recognisable by a faint alveolar structure, all gland elements having disappeared. The whole of these areas stain badly. In the necrotic portions the smaller blood vessels are filled with more or less hyaline thrombi. Around the necrotic areas in the head and body is a deposit of old blood pigment, and the appearances rather suggest that here the lesions are of older date than those in the tail. Inflammation is most marked in sections of the head. The remaining gland parenchyma is badly preserved owing to auto-digestion, and the head appears to show a slight grade of chronic interstitial pancreatitis of the interlobular type. Throughout the sections the Islands of Langerhans are found with difficulty, and, from comparisons with other sections, their number in the tail sections at all events appears to be diminished. Two of the Islands of Langerhans found in the tail sections are very large in size. The cells, however, are rather broken

up, and into one of them hæmorrhage has occurred. Minute changes are not recognizable owing to bad preservation of the tissue. The epithelium of Wirsung's duct shows distinct signs of a catarrhal change.

Summary.

The condition is one of acute pancreatitis, with hæmorrhage and necrosis (the acute form of hæmorrhagic pancreatitis in Mayo Robson's classification).

Owing to Dr. Fison's kindness, I am able to show photographs of the extensive fat necrosis and the microscopic appearance of the damaged pancreas.

The following is a case of gangrenous pancreatitis due to gall stones, which recovered after operation.

Mr. S.—, aged 58, had for six years been subject to paroxysmal attacks of acute pain, starting in the right hypochondrium and radiating over the abdomen and through to the right scapula, the attacks being accompanied by vomiting and more or less collapse. On several occasions he had passed small gall-stones.

About ten weeks before I saw him he was seized with an attack which did not, as usual, yield to morphia. The liver became enlarged and tender; there was a great amount of flatulence and acidity and a feeling of discomfort generally. After this seizure he had ague-like attacks and jaundice of varying intensity, and from that time a tumour steadily developed in the epigastric and right hypochondriac regions. He rapidly lost flesh and strength, and when he was taken into a surgical home for operation he was so feeble and emaciated that it was questionable whether he would be strong enough to bear it. Jaundice was well-marked, and the tumour in the upper abdomen, which was tense, tender and fluctuating, was still enlarging. He had had diarrhœa six times a day for several days before admission, and the motions were bulky and pale and contained fat. The urinary pancreatic reaction was well-marked. Just before operation he vomited clear fluid, not containing bile. Operation was performed on April 5th, 1902, when a pancreatic cyst was exposed between the stomach and colon, containing four pints of straw-coloured fluid. Inside the cyst was found a mottled black slough with gray patches, $2\frac{1}{2}$ to 3 inches long by $1\frac{1}{4}$ inches broad, and $\frac{1}{2}$ inch thick, evidently pancreas. See plates xvii. and xviii. The gall bladder and ducts contained thirty stones, two the size of walnuts. One of these was found at the junction of the cystic and common duct, and pressing on the latter. The cyst of the pancreas and the gall bladder were drained by separate tubes with the stomach, and the first

part of the duodenum between them. On being put back to bed the patient was quiet, but vomited frequently. He made a steady recovery without any untoward symptoms, and left for home on May 2nd, 1903. On March 3rd, 1904, the patient was the picture of health, and had gained 1½ stones in weight. He told me that the gall bladder opening had closed in six weeks and the pancreatic fistula in nine weeks.

Symptomatology.

It is quite unnecessary for me to give the ordinary symptomatology of cholelithiasis or of pancreatitis in its various forms, as I have done that elsewhere, but it may reasonably be asked,—How can it be told when catarrhal or interstitial inflammation of the pancreas has supervened on cholelithiasis? So long as the concretions remain in the gall bladder or cystic duct, it is extremely unlikely that the pancreas will participate in the cholecystitis, unless the pancreatic duct has become infected at the same time as the bile ducts.

As soon as gall stones pass into the common duct, even if they are not long detained in it, a catarrhal or even a parenchymatous pancreatitis may supervene, but if the gall stone remains in the pancreatic of inter-parietal portion of the common duct, setting up infective cholangitis, a pancreatitis is almost certain to occur.

The symptoms of pancreatic catarrh passing on to interstitial pancreatitis vary according to the cause; for instance, if it be due to gall stones, there will be a history of painful attacks in the right hypochondrium and epigastrium associated with jaundice, and possibly accompanied by fever of an intermittent type often resembling ague. Tenderness at the epigastrium, with some fulness above the umbilicus, will usually be noticed. Loss of flesh soon becomes marked, and if the pancreatic symptoms predominate, the pain will pass from the epigastrium round the left side or even to the renal and scapular regions. Fat and muscle fibres may be noticed in the motions as soon as the obstruction to Wirsung's duct is complete, and the pancreatic reaction will be found in the urine. If gall stones be not the cause, there may be merely an aching or painful attacks not at all pronounced, or the symptoms may come on painlessly, associated with dyspepsia and with slight jaundice soon becoming more marked. In such cases, if the swollen pancreas tightly embraces the common bile duct, the gall bladder may dilate, and give rise to a suspicion of cancer of the pancreas, which the rapid loss of flesh will tend to confirm. In the latter stages, pale or white and bulky notions may be passed, and a hæmorrhagic tendency may be noticed. The liver is usually enlarged when the common bile

duct is tightly gripped, and in several cases I have found cirrhosis of the liver, doubtless due to the long-continued stagnation of septic bile in the ducts. I have seen well-marked enlargement of the spleen on four occasions. In one patient the fever and the enlarged spleen gave rise to a suspicion of ague, the organisms of which were said to have been found in the blood, and on several occasions the repeated rigors have led to the diagnosis of malarial fever.

In 60 per cent. bile was present in the urine. In 40 per cent. calcium oxalate crystals were found. In 4 per cent. the oxalate crystals were associated with bile. In none of my cases was glycosuria found, though in two cases it developed several years later. Opie reports having found glycosuria in one out of 22 cases. Glycosuria only occurs as a very late symptom. Death may occur from asthenia, due to long-continued jaundice, or from some intercurrent disease, predisposed to by the loss of flesh and debility.

The symptoms of pancreatitis may be conveniently classified under

- 1 Digestive symptoms.
2. Physical signs.
3. Metabolic symptoms.
4. Symptoms artificially produced.

Digestive symptoms.

- a. Statorrhoe or fatty stools.
- b. Azotorrhoe or faulty digestion of albuminous foods.
- c. Sialorrhoea.
- d. Diarrhoea.
- e. Dyspeptic disturbances.
- f. Emaciation.
- g. Nausea and vomiting.

Physical signs:

- a. Presence of swelling or tumour.
- b. Fever.
- c. Pain and tenderness with muscular resistance.
- d. Pressure on adjacent organs.
- e. Hæmorrhage.
- f. Jaundice.
- g. Fat necrosis (evident only when the abdomen is opened).

Metabolic symptoms:

- a. Glycosuria.
- b. Other urinary changes.

Special symptoms obtained by artificial means:

- a. Alimentary glycosuria.
- b. Sahli's symptom.

I am sorry that the time at my disposal will not allow me to dwell on these symptoms individually, but as I have recently done so in my Hunterian lectures, which can be seen in the *Lancet* for March 19th and 26th, and April 2nd, 1904, I need only now refer to them collectively. I would at once say that no single symptom alone will justify the diagnosis of pancreatic disease, but with such a number of symptoms and signs as those I have related, it is a mystery to me how the idea has gained so firm a hold that pancreatic diseases are, as a rule, undiagnosable. For instance, Opie only last year wrote: "Disease of the pancreas is rarely recognized during life," which is a reproach that I hope will in future have no justification. Although in any single case we may not have all the symptoms and signs that I have mentioned, yet in no case ought we to fail to find digestive or metabolic or physical signs if disease of the pancreas be present. Different diseases of the pancreas, it will be seen, as one would expect, present very various grouping of symptoms, but in nearly every, if not in every, case since Dr. Cammidge and I have been working together at the subject we have found most valuable help from the urinary pancreatic reaction. Although we must not yet say that this sign is absolutely pathognomonic, yet it is safe to make this assertion, that if the test be skilfully carried out, it affords most valuable, positive or negative evidence, when taken with other symptoms, in not only establishing the presence or absence of some disease of the pancreas, but in assisting in the differentiation of simple from malignant disease, a most important matter when surgical treatment is in question.

For the significance of the urinary test, and for the somewhat complicated and elaborate method of carrying it out, full details will be found in the Arris and Gale lecture published in the *Lancet* for March 14th, 1904.

Treatment:

The treatment of catarrhal inflammation of the pancreas and of chronic interstitial pancreatitis will at first be by general and medical means, aiming at the cause whether that be gall stones, pancreatic calculi, duodenal catarrh, gastric ulcer, alcoholism or syphilis; but if after a fair trial of medical treatment, not too long continued, the jaundice and loss of weight continue, and the signs of failure in pancreatic digestion and metabolism are manifesting themselves, the ques-

tion of surgical treatment should be seriously considered, for the condition is one that if not relieved early will certainly lead to serious degeneration of the gland, or become dangerous to life in other ways. When operation is undertaken before the process has advanced to well-marked interstitial pancreatitis, my experience is that complete cure is effected in a very great proportion of cases, but if interstitial inflammation has become well marked and has advanced either to the inter-acinar form or to cirrhosis, an arrest of the process is all that can be looked for. As proof of this statement in some of my own cases, apparently well several years after operation, a pancreatic reaction can yet be obtained in the urine, while in two cases glycosuria has developed, thus showing that inflammation of the pancreas, if at all advanced, leaves abiding changes, and the sooner the morbid process is checked the less likelihood there will be of a permanently deficient metabolism.

Surgical treatment will vary according to the cause and the symptoms. Where there is evidence of obstruction, whether in the pancreatic or common bile ducts, the cause in the greater number of cases, 27 as compared with 24, will prove to be concretions, which should, if possible, be removed, and, as proved by my experience in this class of cases, the hope of cure or of great relief is very promising.

Not only is it desirable to remove the cause of obstruction, but at the same time the bile ducts should be drained either by means of cholecystotomy or cholecystenterostomy. Where no obstruction in the shape of gall stones or pancreatic calculi can be found, I would still advise drainage of the bile ducts by one of these operations. It has been argued that it is difficult to comprehend how drainage can do good in these cases; for proof of its efficiency, I would appeal to the list of examples that I have given and to the after history of the cases which I have operated upon. The drainage of the bile ducts acts, not only by removing one source or irritation in the shape of infected bile, but at the same time it relieves tension and allows the infected pancreatic secretion to escape, besides also freeing the blood from a poison which seriously damages it and the system at large. Besides the beneficial effects of drainage, in many of the cases the cause of obstruction is also removed. Whether advanced chronic interstitial pancreatitis will be completely cured by operation it is difficult to say, for in some of the severer cases a pancreatic reaction is found long after operation and after all other symptoms have cleared up, but in several cases that have been tested years after operation, the pancreatic reaction has entirely disappeared, thus apparently proving that the case is cured. Moreover, I suspect that the operation arrests the process of disorganisation, even

if it cannot alter the changes that have already occurred. Doubtless, in some the disease was a catarrhal inflammation of the pancreas, which was arrested either before interstitial inflammation had actually developed or before it had advanced too far, and probably in none of the cases had the interstitial change advanced so far as to become inter-acinar, or to present the advanced stage of atrophy or cirrhosis, as in none of the cases was sugar present in the urine at the time of operation, though the metabolic functions of the pancreas were impaired, as shown by the presence of the pancreatic reaction, and the digestive functions were affected as shown by the condition of the fæces.

Whenever the pancreas is involved either in catarrh or in chronic inflammation, the surgeon must be prepared to do a thorough operation for exposure of the whole length of the common duct as well as the head of the pancreas. I trust that I shall be pardoned if I give in detail the operation which I have been accustomed to perform, and which I have found both convenient and efficient.

Details of operation:

I have been able to modify the operation for exploring the head of the pancreas and the common bile duct in such a way that what was formerly a most difficult procedure, involved prolonged manipulation, special appliances, and at least two assistants, is now a comparatively simple operation, in the greater number of cases, only requiring the help of one assistant and not requiring the use of any special apparatus. By this method the time involved in the operation is reduced considerably, and where adhesions do not give unusual trouble, it is easy to complete the work in from 30 to 40 minutes, which not only means a saving of time and fatigue to the operator, but a considerable saving of shock to the patient. I always employ a firm sandbag under the back opposite to the liver, which not only pushes the spine, and with it the pancreas and common duct, forward, but acts like the Trendelenburg position in pelvic surgery by letting the viscera fall away from the field of operation. I then make a vertical incision over the middle of the right rectus, the fibres of which are separated by the finger, which I find to be the most expeditious and the most effective method of exposing the gall bladder and bile ducts, but when it is necessary to open either the common duct or the deeper part of the cystic duct, instead of prolonging the incision downwards, as was formerly done, I now carry it upwards in the interval between the ensiform cartilage and the right costal margin as high as possible, thus exposing the upper portion of the liver very freely. It will now be found that by lifting the lower

border of the liver in bulk (if needful, first drawing the organ downwards from under cover of the ribs) the whole of the gall bladder and the cystic and common ducts are brought close to the surface, and as the gall bladder is usually strong enough to bear traction, the assistant can take hold of it by fingers or forceps, and by gentle traction can keep the parts well exposed, at the same time that, by means of his left hand with a flat sponge under it, he retracts the left side of the wound and the viscera, which would otherwise fall over the common duct and impede the view. It will now be observed that instead of the gall bladder and cystic duct making a considerable angle with the common duct an almost straight passage is found from the opening in the gall bladder to the entrance of the bile duct into the duodenum, and if adhesions have been thoroughly separated, as they should always be, the surgeon has immediately under his eye the whole length of the ducts with the head of the pancreas and the duodenum. So complete is the exposure that, if needful, the peritoneum can be incised, and the common duct can be separated from the structures in the free border of the lesser omentum, but this is not necessary except where a growth has to be excised. The surgeon whose hands are both free can now with his left finger and thumb so manipulate the common duct as to render prominent any concretions which can be cut down on directly, the edges of the opening in the duct being caught by pressure forceps. The assistant can now take hold of the forceps with his left hand, as that instrument with the sponge will form a sufficient retractor, since the duct is so near the surface. When the duct is incised there is usually a free flow of bile, which, it must be remembered, is infective, but a sponge in the kidney pouch and the rapid mopping up of bile as it flows, by means of sterilized gauze pads, avoid any soiling of the surrounding parts, and, if thought necessary, the bulk of the infected bile can be drawn off by the aspirator either from the gall bladder or from the common duct above the obstruction before the incision into the duct is made. After removing all obvious concretions, the fingers are passed behind the duodenum and along the course of the hepatic ducts to feel if other gall stones are hidden there, and a gall stone scoop, the only special instrument that I use, is passed up into the primary division of the hepatic duct in the liver and quite down to the duodenal orifice of the common bile duct, and to ensure the opening into the duodenum being patent, a long probe is passed into the bowel. The incision into the bile duct is now closed by an ordinary curved round needle held in the fingers without any needle-holder, a continuous catgut suture being used for the margins of the duct proper, and a continuous

fine green catgut or spun celluloid thread being employed to close the peritoneal edges of the gut. In such cases where the pancreas is indurated and swollen from chronic pancreatitis, and is likely to exert pressure on the common duct for a time, I insert a drainage tube directly into the duct and close the opening around it by a purse string suture, the tube being fixed into the opening by a catgut stitch, which will hold for about a week, but where this is not done I usually fix a drainage tube into the fundus of the gall bladder in the same way, as this drains away all infected bile and avoids pressure on the newly sutured opening in the duct.

So easy is it to remove impacted stones after this method of exposure that I now never spend a long time in manipulating stones impacted either in the cystic or common duct, but at once incise the duct, remove the concretions, and close the opening without damaging the duct by prolonged manipulation. Although there is seldom any fear of leakage or of infection, yet, owing to the separation of extensive adhesions, there is usually some tendency to pouring out of fluid in the first 24 hours. I therefore generally insert a gauze drain through a split drainage tube, bringing it out by the side of the gall bladder drain. The wound is closed in the usual way by continuous catgut sutures, first to the peritoneum and deep rectus sheath, next to the anterior rectus sheath, and lastly to the skin. Even in acute or subacute, as well as in chronic pancreatitis, this method is advantageous, as at the same time that the pancreas is exposed the bile ducts can be explored, and if the cause be gall stones, they can be removed. Should it be necessary to expose the under surface of the pancreas, an extension of the incision downwards gives enough room to raise the transverse colon and to get directly at the body of the pancreas through the transverse meso-colon.

To those having little experience in this operation, the modifications which I have employed may seem trivial, but to those who have experienced the difficulties of the ordinary operation I feel sure that the method which I have described, which enables the pancreas and the whole of the bile passages to be dealt with close to the surface, will be sufficiently appreciated. But the technique of the operation is not the only important part of the treatment of these serious cases, which require thought and care, not only before and at the time of, but subsequently to operation.

A careful study of the causes of mortality in operations on the common duct, associated with jaundice and pancreatitis, shows that hæmorrhage, either immediate, consecutive, or secondary cannot be

ignored as a danger, and that shock, apart from hæmorrhage, has next to claim our attention. Sepsis is no longer the bugbear that it used to be, thanks to a rigid all-round asepsis, the employment of gauze drainage, and the careful avoidance of soiling the wound by infected bile. Although there is a greater tendency to bleeding in chronic jaundice from pancreatic disease than when jaundice is due to gall stone obstruction, I think there can be no doubt that in all cholaemic conditions the blood becomes so altered that the coagulability becomes seriously diminished, and that these features demand serious attention before any operation is undertaken in cases of common duct cholelithiasis.

I now always employ chloride of calcium in the case of jaundiced patients, both before operation in 30 grain doses by the mouth, and afterwards in 60 grain doses by the rectum twice or thrice daily for several days.

I think it is important to ligature all bleeding points and not to trust simply to forcipressure, and while in non-jaundiced patients adhesions may be simply separated, in these cases I prefer to divide adhesions between ligatures where practicable. Where there is persistent oozing of blood from innumerable points, a tampon of sterilized gauze forms a useful means of hæmostasis, and this may be made more efficient by employing at the same time a solution of suprarenal extract to the bleeding surfaces.

The best treatment of shock is preventive, and to that end it is desirable to lose as little blood as possible, though I do not agree with those who assert that shock in operation is always dependent on loss of blood.

The patient is enveloped in a roughly made suit of gamgee tissue, and where he is very feeble, or the operation is likely to be prolonged, it is performed on a heated table. A large enema of normal saline solution with or without stimulant, given from 15 to 20 minutes before, and the administration of from five to ten minims of solution of strychnia, subcutaneously just before commencing anæsthesia are useful. Expedition in operating is an important factor in lessening shock, especially in abdominal surgery, for it stands to reason that prolonged manipulation and exposure of the viscera in patients so ill as are those composing the class of cases which we are now considering must generally be, will be badly borne, for it is not only the work of the surgeon but the deep anæsthesia that adds to the shock, since for the operation to be well and expeditiously performed the muscles must be thoroughly relaxed.

After the operation, a pint of saline fluid, with one ounce of brandy, is given by enema, and five minims of solution of strychnia are given subcutaneously in two hours and repeated if desirable.

Subcutaneous injections of saline fluid or intravenous infusion are only rarely required.

Statistics:

In order to ascertain the after results of the operations, letters were recently addressed to the friends or medical attendants of all the patients who had not been recently heard of. In one case, where the cause was due to pancreatic calculi, these were removed both from Wirsung's and Santorini's ducts with complete recovery, and the patient is now well.

In twenty-seven cases of catarrhal or interstitial pancreatitis, where gall stones were found obstructing the pancreatic portion of the common duct, cheledochotomy in 19, cholecystotomy in 5, and cholecystenterostomy in 3 were followed not only by immediate recovery, but, as ascertained by recent reports, the patients are now well, except one, who has since died from acute bronchitis, one who twelve months later died from cirrhosis of the liver, and one who eight and a half years subsequently to operation is apparently well, though sugar has recently been found in the urine. In twenty-four cases, where obstruction to the common bile duct was due to an inflammatory condition of the pancreas compressing the bile duct, though probably in many of the cases originally due to gall stones, yet where gall stones were not actually present at the time of operation, the bile ducts, and thus indirectly the pancreatic ducts, were drained, in 12 cases by simple cholecystotomy, and in 9 by cholecystenterostomy; in three cases adhesions were separated, and no drainage of bile ducts was performed. Of these 24 cases 22 recovered.

Two out of 51 patients died as a direct result of the operation—one a cholecystotomy undertaken in a patient reduced to the last stage of exhaustion before a surgical opinion was sought, and where at the necropsy a chirrhotic condition of the head of the pancreas was found, and a second, in which a cholecystenterostomy was undertaken in the presence of adhesions that appeared too formidable to deal with considering the poor condition of the patient, who succumbed a few hours later. In this case necropsy revealed a stone in the pancreatic portion of the common duct, which would have been discovered had the patient's condition permitted a thorough exploration. From four, the letters were returned as "Gone, no address." The remaining 16 completely re-

covered. Of three patients in whom the pancreas was found enlarged at operation, nothing beyond separation of adhesions and manipulation being done, all recovered. In one of these cases glycosuria has supervened and is still present, though the patient seems to be well. The after history of one cannot be traced. Of the third, word has been received to say she is well fourteen years after operation.

Thus I have no hesitation in advocating operation in this class of cases after general and medical means have had a fair but not too long a trial, and the results I have given will, I think, justify my conclusions. A search through the literature of the subject has revealed the facts that (apart from my own cases, 51 in number, with two deaths, or a mortality of 3.9 per cent.) there have been 62 operations for chronic pancreatitis recorded, of which 8 died, yielding a rate of mortality of 12.9 per cent. These cases have all been verified for me independently.

The subacute form of pancreatitis is more amenable to treatment than the acute, as the indications are so much more definite, and there is more time for careful consideration. Though it has usually only been attacked when an abscess has formed and is manifestly making its way to the surface, yet there is no reason why in some cases surgical treatment should not be adopted at an earlier stage, as in the acute condition morphine may be required to relieve the pain and lessen the collapse, Distension, if present, demands attention, and may have to be relieved by lavage of the stomach and turpentine enemata, or by the administration of calomel by the mouth. Calomel is also of benefit as an intestinal antiseptic, for which purpose it may be given in small repeated doses, followed by a saline aperient. As soon as the constipation is relieved, diarrhoea is apt to supervene, when salol and bismuth, with small doses of opium, may be given. If surgical treatment is decided on, an incision through the upper part of the right rectus will not only be useful for exploring the bile passages and removing any concretions, but will enable the operator to palpate the pancreas and to locate any incipient collection of pus, which, if practicable, should then be evacuated by a posterior incision in the left or right costo-vertebral angle. If the posterior incision be thought impracticable, the collection of pus may be removed by aspiration, and the cavity opened and packed with gauze, which may be brought forwards through a large rubber tube; which procedure will, in the course of from 24 to 48 hours, establish a track isolated from the general peritoneal cavity. In abscess of the pancreas, which usually assumes the form of sub-acute pancreatitis, and which we must distinguish from the acute suppurative pancreatitis where the pus is diffused through the gland, or where the

abscesses are small and multiple, the suppurating process is limited by a pouring out of lymph, so that should the patient survive the initial more acute stage and discovery of the pus-containing cavity be made, the condition is one decidedly amenable to treatment by drainage. The anatomical relations will readily explain the course along which the pus burrows should it burst through its lymph barriers—for instance, in one case I was able to evacuate an abscess from the right loin in a young man, aged 24 years, that had been mistaken for a perirenal abscess, yet the kidney was quite healthy and the grumous pus had come from the pancreas and had passed behind the peritoneum, covering the second part of the duodenum. The patient recovered completely. In another case I opened the abscess in the left iliac region that had apparently started from the body of the pancreas, and which had burrowed in the same way behind the peritoneum. The patient recovered from the operation, but developed trouble in the left side of the thorax, and died suddenly several weeks later. In one case of acute suppurative pancreatitis the abscess was subphrenic, and was evacuated by an epigastric incision to the left of the mid-line. Unfortunately the patient was too ill to bear a prolonged operation, otherwise I should have drained from the left loin, which might possibly have saved the patient. In another, where the symptoms were rather acute and the patient was extremely ill, I discovered pus between the liver and the stomach, and although drainage was apparently complete, the patient succumbed in a few days to exhaustion, due to the septic process that had been initiated before the abscess was opened. In two other cases the sequence of suppurative catarrh, I successfully drained abscesses of the pancreas through a tube in the common bile duct after removing the gall stones which had obstructed Wirsung's duct.

In one of these cases, the patient, a woman, aged 72 years, remains quite well, and in the other, a man, aged 40 years, recovered from the operation, but three months afterwards died from exhaustion, and at the necropsy the empty abscess cavity was discovered in the head of the pancreas, the rest of the gland being affected with chronic interstitial inflammation. In one of my cases, in a man, aged 35 years, a pancreatic abscess burst into the stomach, setting up acute gastritis, the condition being proved by an exploratory operation. It was treated by gastro-enterostomy to drain away the foul stomach contents. The patient is now quite well four years later. In another case, a young married woman, aged 26 years, the abscess apparently burst into the bowel, and although recovery was tardy, she ultimately got quite well without operation. The diagnosis was made from the symptoms and

by an examination of the swollen pancreas under an anæsthetic and subsequently by the presence of a pancreatic reaction in the urine. It is important in these cases to see that the cause is removed, if that be possible—for instance, gall stones or pancreatic calculi—so that if recovery occurs, there may be nothing left to lead to a recurrence of the trouble.

It will thus be seen that I have had eight cases of abscess of the pancreas under my care, one of which was complicated by acute hæmorrhagic pancreatitis. Six were operated on, with recovery in five, although in one of the cases the relief was only for a few weeks and in another for a few months. In the eighth case, which was not operated on, the abscess burst into the bowel and was discharged, the diagnosis having been made by an examination of the tumour under an anæsthetic by the presence of digestive symptoms and by the discovery of the pancreatic reaction. When inflammation of the pancreas has ended in abscess, chronic interstitial pancreatitis will also probably be present, as was shown at the necropsy of one of my cases that died some months subsequently. It is possible that in some cases the interstitial change may be local, though in others it may be general, and may then lead to atrophy of the gland and to glycosuria. A search through literature reveals a considerable number of pyæmic abscesses of the pancreas, but those resulting from subacute pancreatitis are not common. Besides my own seven operations for abscess of the pancreas with two deaths, there have been seven others recorded with three deaths. Thus of 14 cases, 5 died, giving a mortality of 36·6 per cent.

Treatment of acute pancreatitis:

The pain at the onset is so acute as to necessitate the administration of morphine, and the collapse will probably demand stimulents, which, on account of the associated vomiting, may have to be given by enema. In the early stages the symptoms may be so indefinite that the indications for surgical treatment are often not clear enough to warrant operation. But as soon as acute pancreatitis is proved, as it may be by the combination of symptoms, together with the urinary test, the surgeon must not wait until the collapse has passed off, as that may be dependent on septic absorption, which can only be relieved by operation. The simulation of intestinal obstruction will probably lead to efforts to secure an evacuation of the bowels and relief to the distension. Just as in perforative or gangrenous appendicitis an early evacuation of the septic matter is necessary to recovery, so in this equally lethal affection an early exploration from the front either through the right rectus, for

reasons stated previously, or through the middle line above the umbilicus or from behind through the left costo-vertebral angle is indicated, in order, if possible, to relieve tension, to evacuate septic material, to secure free drainage and to arrest the hæmorrhage, which leads to disintegration and necrosis of the pancreas. The after treatment will be chiefly directed to combating shock and keeping up the strength until the *materies morbi*, both local and general, can be thrown off. Even if no pus be found, no harm should accrue by such an exploration, which can be made in a few minutes through a very small incision in the middle line above the umbilicus, if necessary, with the aid of cocaine. After establishing the diagnosis by the discovery of fat necrosis, a posterior incision in the left costo-vertebral angle will not only enable the diseased organ to be very freely examined and, if necessary, drained for the evacuation of pus and gangrenous material, but will also secure free drainage of the lesser peritoneal sac. If, however, the inflammatory collection or the tense distended and inflamed gland be incised from the front, as is advisable in certain cases, gauze packing and gauze drainage may usually be relied on to prevent general infection of the peritoneum. If there are signs of obstructed common duct, the gall bladder should also be drained, and if gall stones be discovered, they should be removed, if this can be done without seriously adding to the length of the operation or imperilling life by adding to the shock, otherwise they may be left and removed on a subsequent occasion if free drainage of the bile passages can be secured. I have had seven cases of acute pancreatitis under my care, and have operated on five, three of which recovered. Of the two cases where operation was not consented to and where medical treatment alone was carried out, death occurred, in the first case, on the third day, and in the second case after a week's illness, attended in both with great pain and incessant vomiting.

I have already described a case of gangrenous pancreatitis in a man, aged 58 years, in which I was able to open a collection of fluid through the great omentum above the hepatic flexure of the colon, and to extract a slough of the pancreas, and at the same time to drain the gall bladder and remove all gall stones, recovery being ultimately complete.

In another case, in a middle-aged man run down by over work, but who was otherwise healthy, a sudden severe epigastric pain was followed by high fever, rigors, epigastric swelling, and obstruction of the common duct. Abdominal distension, chiefly of the upper part, and an ill-defined epigastric tumour pointed to the pancreas, and fat in the motions with the pancreatic reaction in the urine confirmed the diagnosis of pancreatitis.

As there had been a previous history of gall stones, the question of common duct cholelithiasis was a cause that was thought probable. Exploration revealed a considerable tumefaction of the whole length of the pancreas, but especially of the head of the gland. Omental and visceral adhesions, together with the extreme illness of the patient, rendered a careful examination impossible, and as the gall bladder was acutely inflamed and distended, cholecystotomy was performed. Within the next 24 hours nearly two pints of muco-purulent material tinged with bile escaped. No gall stones were felt. The patient recovered, and is now well.

In another case of a young married woman suffering from acute suppurative pancreatitis, the viscera were found hopelessly matted together. There was extensive fat necrosis all over the abdomen. I evacuated a subphrenic abscess containing masses of necrosed fat and dark slate-coloured pus. The patient was only temporarily relieved, and succumbed on the third day.

In this case I think I ought to have drained through the costo-spinal angle on the left side as well as from the front, but the patient was so ill that I feared to do more lest death should occur on the table.

In case of traumatic hæmorrhage pancreatitis in a man, aged 28 years, on whom I operated, drainage through the loin as well as in front was adopted, but did not save life, as at the time of operation peritonitis was already advanced.

In another case of a middle-aged medical man, the diffuse fat necrosis and adhesions of the viscera and omentum into a dense mass presented a formidable obstacle to complete exploration, but as no evidence of any collection of fluid either in the pancreas or in the lesser peritoneal sac could be obtained, and as no gall stones could be felt either in the gall bladder or bile ducts, I simply performed the peritoneal toilet and closed the abdomen, recovery following, and ending in complete restoration to health. It is worthy of note that in this case the diagnosis was confirmed before operation by the urinary pancreatic reaction.

A case was reported by Dr. Charles D. Muspratt of a woman, aged 40 years, who had been admitted to the Royal Victoria Hospital, Bournemouth, on December 3rd, 1903, in a state of collapse, and suffering from severe abdominal pain with incessant vomiting. The abdomen was opened within twenty-four hours of the onset of acute symptoms, and the omentum and intestines in the neighbourhood of the pancreas were found deeply blood-stained with numerous spots of fat necrosis. The pancreas was almost purple and extremely tense. An incision

was made into the dark gland, and very free bleeding followed, which was arrested by ligature. Gauze drainage was employed and complete recovery followed. This is apparently the first case in which direct incision of the pancreas has been adopted, and the operator is to be congratulated not only on having the strength of his convictions in treating acute hæmorrhagic pancreatitis on the lines of other phlegmonous inflammations, but on the success of such treatment.

In a case reported by Von Mikulicz in 1903, a patient under the care of Dr. C. B. Porter, of Boston, was operated on by a deep incision into the inflamed gland, with an excellent result. This is apparently the second case in which the pancreas was deliberately incised during acute inflammation with a successful result. Woolsey (*Annals of Surgery*, November, 1903) gives a summary of three cases of this affection successfully dealt with by laparotomy and drainage. The first two cases were operated on in the early stage—the first on the third day and the second twelve hours after the onset. The first case was a hæmorrhagic one, and showed fat necrosis; the second case showed no fat necrosis nor bloody fluid, but the latter appeared on the removal of the gauze drain two days after the operation. In the third case there was marked but temporary glycosuria.

Dr. C. G. Kempe, of Salisbury, on December 11th, 1903, excised a portion of the head of the pancreas affected with acute hæmorrhagic pancreatitis. It was done within two hours of the onset of hæmorrhage. The patient, unfortunately, died from diarrhoea fifteen days later.

The argument that the mortality will be less if the surgeon waits for the formation of a local abscess is fallacious, as it takes no consideration of the large percentage of those who die before such a favourable result is presented, and, in the second place, many patients never develop a local abscess, the process being diffuse from the onset. The high mortality of an early operation in acute cases is due to the fact that in many of these fatal instances intestinal obstruction was suspected, and the collapsed patients were subjected to a prolonged search for the seat of the supposed lesion. Of 59 reported cases of operation during the acute stage, 23 recovered—these include my own cases and those just referred to. Although this is a large mortality, it must be borne in mind that the disease is a lethal one, and usually ends in death if not treated surgically.

The lessons which one may learn from recorded cases are not to wait until the system is over-weighted with absorbed poison before operating and not to spend too long a time over the operation.

In conclusion, if we were to base our opinions on the post-mortem

records of the past, inflammatory affections of the pancreas would have to be considered among the rarest of diseases, but recent clinical observations and operative experience shows that such conclusions would be far from accurate, and I think I have been able to demonstrate, both from my own and from the experience of others, that inflammatory affections of the pancreas or its ducts are very much more common than is generally supposed. Fortunately, in showing the frequency of pancreatitis, and the very serious nature of the acute, subacute and chronic varieties of the disease, I have been able to demonstrate that we can do very much for these patients by timely surgical intervention. But I want to convince my audience that if only we can have the assistance and support of our medical colleagues, nearly all the cases forming the subject of my address to-day (that is, pancreatitis due to gall stones) may be prevented by timely interference, and that with barely 1 per cent. of risk.

We know that gall stones may exist in the gall bladder without causing any trouble and without giving notice of their presence, but as soon as they pass into the cystic duct, or as soon as they begin to produce catarrh, they fortunately give ample evidence of their presence.

Were the concretions removed in that stage, there should be no mortality, and, as can be proved both by my own personal experience in several hundreds of cases and by the experience of other operators of large experience in this line of work, the operative treatment of cholelithiasis undertaken before the onset of deep jaundice and infection of the bile and pancreatic ducts is with due care and in skilful hands almost devoid of danger.

Hence, in advising surgical treatment of gall stones at an early period, I am advocating a truly beneficial procedure, which would prevent the occurrence of many of those serious cases of pancreatitis that cause danger to life.

“OUR SEVENTY-SIXTH ANNIVERSARY.”

THE ANNUAL UNIVERSITY LECTURE FOR 1904.

BY

W. PETERSON, Principal of McGill University.

Members of Convocation, Undergraduates, Ladies and Gentlemen:

The arrangement by which the Annual University Lecture is henceforth to be delivered on our Founder's Birthday marks a new departure in the internal economy of the University; and it may be expedient, by way of introduction, to set forth in a few words the reasons for the change. For several years past this lecture has been given at almost

any time of the year that happened to be convenient to the lecturer. He was usually one of the considerable number of new professors who have recently enriched the teaching staff, and, though sometimes pleading for a few months' grace, he was not at heart unwilling to avail himself of so conspicuous an opportunity of setting forth, before an audience intended to represent the whole University, the special importance and attractiveness of his particular subject. With the growing solidarity of the Faculties, and an increasing consciousness on the part of all of us that we belong to one common whole, the view has been expressed, and has found very gratifying support, that the proper way for a great University to begin its annual operations is for all its members to meet together with one accord in one place, and to signify by such meeting their acceptance of the watchword "unity amid diversity." Every year that adds itself to our history witnesses an ever growing complexity in our academic machinery. But it is easier now, perhaps, than it has sometimes been—even notwithstanding the fact that the Molson Hall has become quite inadequate to our needs—to cherish the feeling that we all are members one of another, and that nothing can happen in any section of the University that is not of interest and importance to the whole.

This being so, the suggestion was received from the Academic Board that our Founder's Birthday, which falls so fitly almost at the beginning of the session, would be the proper occasion for the holding of such an annual celebration. James McGill was born on the 6th October, 1744. It may be said that he "builted more wisely than he knew" when he made provision for the foundation of a college which—though it has reached a development surpassing, in all likelihood, his fondest dreams—is still content to bear his name. In reading recently Mr. Morley's *Life of Gladstone*—a work which, in view of the author's approaching visit to McGill, had for me a double interest, and which has just been characterized by Dr. Goldwin Smith as the most notable event in the publishing world since the issue of the first volumes of Macaulay's history—in reading Gladstone's life, I was much struck by the way in which, under fortunate circumstances, individuals may link the centuries together. Mr. Gladstone's father was born in 1764, and died in 1851. The great statesman himself lived to see his 88th birthday before his death in 1898. James McGill was born 20 years earlier than Mr. Gladstone's father, and, dying in 1813, he might have left a son who could have been with us down to quite recent memory. What changes have taken place within the span of two such life times! It would have been altogether impossible for our founder, when in 1813 he laid down a life full of high purpose, public spirit and honest in-

dustry, to forecast the future which we are privileged now to read like an open book. The political destiny of his adopted country must often have seemed to him full of dark and well-nigh insoluble problems. The war which raged round the proposal to found, by the aid of Government grants, a Provincial University, of which McGill College should be a component part, was only an augury of the unfortunate dualism which has since prevailed in regard to educational interests in the province of Quebec. At the time of James McGill's death, the population of Montreal was scarcely 15,000: the extent of its foreign trade may be measured by the fact that nine ships, of an aggregate of 1,589 tons, are reported as having come up from the sea in the year 1813. Our founder's heart would thrill with patriotic exultation if he could come back to earth and witness the gigantic strides which Montreal and Canada have made in all that pertains to material progress and advancement; but may we not well believe that the moment of his greatest rapture would come when he turned to look on the noble pile of buildings, reared by the munificence of others of his own race and speech, and standing on what is, architecturally, one of the finest University sites on the whole American continent. Conspicuous in the very centre of our common collegiate life, is the spot where now his honoured bones repose: *placida compostus pace quiescit*. The steadfast purpose which he had at heart has been realized increasingly with the lapse of years, and his memory will ever be cherished by a grateful and appreciative community.

Recent research in the Matriculation Register of the University of Glasgow has brought to light the fact that nearly a century and a half ago James McGill, along with his brother, Andrew (with whom he was afterwards in partnership in Montreal) entered as a student at that famous seat of learning, as you are students here to-day.* It was the custom in those days to enter young, and James McGill matriculated at an age (12) at which we should hardly welcome accessions to the college which now bears his name. But the emergence of the date, and of the fact of his connexion with Glasgow University, gives additional point to a passage in the Latin address which was forwarded by Corporation to Glasgow for the celebration of its ninth jubilee, with the acknowledgment that it was from Glasgow that Montreal had received, by the hand of James McGill, "that glowing

* The entries in the Matriculation Album of Glasgow University are as under:*

1756 "Jacobus McGill filius natu maximus Jacobi mercatoris Glasguensis."

1765 "Andreas McGill filius natu quintus Jacobi mercatoris Glasguensis."

torch which is never to grow dim or to be extinguished in this land."** This sturdy son of Glasgow knew what its school and college system had done for his native land, and he was anxious to secure to all time the same advantages for the country of his adoption. It is not too much to say that the McGill bequest has proved the "real centre and rallying point" of English education throughout our province.

An important stage in the history of the McGill foundation is marked by the session on which we have just entered. We can now look back on seventy-five years of teaching work. It was in 1829 that, after some litigation on the subject of James McGill's will, the ceremony in connexion with the opening of the new college was held in Burnside House, the former residence of the founder. The institution started with a Faculty of Arts, consisting of the principal and two professors; but on the very day of the inaugural ceremony an important accession was received in the shape of a Faculty of Medicine, composed of the four professors who then formed the Montreal Medical Institute. It was mainly through this Medical Faculty, and owing to the reputation its professors had already achieved, that McGill College was able to make any progress at all during the next twenty years. What its later history was after the new charter was received in 1852, and under the long principalship of the late Sir William Dawson, it is needless here to recall. And now a new quarter-century is opening to our view. In many centres this would have been made the occasion of a great celebration, attended by distinguished representatives from other seats of learning, and by graduates from every part of the country. Thank-offerings in the shape of large additional endowments would have poured in from appreciative supporters, and some return in the shape of honorary degrees might have been made to visitors from sister universities. But though a repetition of the university dinner, last celebrated in 1896, is still within the range of possibility, the general feeling seems to be that McGill has not accomplished all she would like to do before inviting the learned world to join her in holding high festival. Those of you who may find it convenient to attend in the year 1929 will probably enjoy an opportunity of witnessing something on a scale adequate to the occasion of what will then be a centennial celebration!

* Ut enim cum Scoticis Universitatibus summa nobis fuit semper necessitudo ac familiaritas, quippe qui genere institutis, studiis quoque academicis haud multum simus dissimiles, ita artiore quodam cognationis vinculo vobiscum consociati sumus, quod Glassuae natus est, abhinc annos amplius centum et quinquaginta, noster ille conditor Jacobus McGill, cuius memoriam grato adhuc animo et summa pietate prosequimur: qui, quamquam in quo aequoris Atlantici spatio divsus, moribundus quoque dulces reminiscatur Argos, et voluit in novo domicilio existere Academiam quae vestrae potissimum Universitatis referret speciem. Iuvat igitur praedicare a vobis nos per illum tædam illam lucentem accepisse, quae utinam in his terris numquam obscuretur aut evanescat.

On the fly leaf of an old book I find the following Greek verse:—

ἔργα νέων βουλαὶ δὲ μέσων εὐχαὶ δὲ γερόντων

Below it the scribe has obligingly furnished a Latin translation:—
Consule vir, fac vota senex, iuvenisque labora: The meaning is that youth is the time for work, manhood for counsel, and old age for dreaming and praying. Personally, I have not yet begun to dream, or to limit myself to prayers. But as this session marks the tenth year of my residence in Montreal, it has occurred to me that it might not be considered presumptuous if I were to venture to take a forward view, and to forecast the course of the next twenty-five years in the light of the past decade. It is here that wise counsel will be needed, and prayers as well. I might have chosen as the subject of this address some topic remote from current academic questions. Like other university lecturers, I have my favourite studies, the fruits of which, so far as they can be made of general interest, might not unfitly be served up to an audience on an occasion such as this. But the principal of a modern and progressive university has to live very much in the concrete. Wherever he may go he takes his charge in thought along with him. And when he has the opportunity of addressing such an audience, and through it a wider public, he may as well try to turn it to good account, for the advancement of the common cause.

Nearly nine years ago, after but a few months' experience of conditions at McGill, I ventured to embody in a similar lecture, delivered before the University, my ideas of what we should mainly aim at in what was then the immediate future. Will you allow me first to take a backward glance, and by a kind of academic stock-taking endeavour to ascertain how far the aspirations then set forth have been realized in fact? They will probably be the best possible introduction to anything I may feel impelled to say of what is still before us as a University.

The subject of my paper was the "Unity of Learning." Even its title may recall some of the associations of former days, and lead to some congratulations among the friends of the University on the fact that things are not now as they may once have been. McGill is "more together" to-day than it used to be. If I have been able to contribute in any way to this desirable end, it has not been only because my instincts pointed in that direction, but because I did not fail to take to heart the wise words of my venerable predecessor in office, when, in his "Thirty-Eight Years of McGill"—the University lecture delivered by Sir William Dawson in 1893—he spoke as follows:—"The operations of

McGill are now so extensive and complicated that the dangers of disintegration and isolation have become greater than any others, and the Principal must always be the central bond of union of the University, because he alone can know it in all its parts and weigh the claims, needs, dangers, difficulties and opportunities of each of its constituent faculties and departments." Perhaps it was mainly with this thought in mind that I made the main burden of my own inaugural address, in 1896, an appeal for a greater degree of that recognition of the vital interdependence among all studies on which the feeling of a true University brotherhood must ever rest. Only in proportion as we sympathize with our fellow-seekers after knowledge and truth, even while cultivating for ourselves each his little corner of the fruitful field, do we realize the attitude of mind that ought to be the distinguishing mark of an academic community. There is a certain unity of purpose running through our diverse operations that ought to inspire in all of us a consciousness of common sympathies. If, on the other hand, we lose ourselves in our special preoccupations, holding as of little account all other studies and pursuits, we shall pay the penalty in a limitation of mental view that will debar us from enjoying the true communion of spirits. Some degree of specialization is of course a necessity of existence in days when it is no longer possible for a single mind to "take all knowledge for its province." To a large extent we must endure to be practically ignorant of much that lies outside the range of our own immediate studies; but we need not be indifferent to it. A sympathetic appreciation of the spirit and aims of workers in other fields than our own is quite within the range of every one of us—even the youngest! And it is only by cultivating this frame of mind that the individual student can make his own special pursuit a humane study, a collaboration towards universal ends, inspired with the feeling of ideality, as well as with the needed sense of the proportion of the parts to full amplitude of knowledge.

Such an attitude on the part of individuals is the best possible often on the lips of all of us—the university spirit. May I refer to two concrete manifestations of that spirit which are among the novelties of our recent history, and which have not yet attained, perhaps, their full effect and potency? Though blessed otherwise with an excellent constitution, McGill did not possess, until recent years, any organization through the medium of which the collective wisdom of its professorial staff could be brought to bear on current problems. The individual professor could make his voice heard only in his own separate Faculty or through the mouth of the delegate of

that Faculty to Corporation. And so it was open to him to take just as much interest, and no more, in questions of administration as his comparatively limited opportunities allowed of, and at the same time conveniently to disown all responsibility for any mistakes which, in his judgment, might be committed by the University acting in its corporative capacity. All this has been changed by the institution in 1898 of the Academic board, charged with the duty of "considering of such matters as pertain to the interests of the University, as a whole, and making recommendations concerning the same." I do not know of any more important step in the direction of solidarity than this. And we have not far to go in the direction of solidarity than this. And we have not far to go in seeking for an illustration of the opportunities thus afforded. Undoubtedly the greatest boon that has come during recent years to the University, as a whole, is Sir William Macdonald's gift of the McGill Union. There is not a member of the permanent staff who ought not to be interested in the affairs of this institution—whether they concern its constitution, its internal arrangements, or the regulation for its maintenance and administration. The Union is bound to play a most important part in the future in the development of student life at McGill. Well, the Academic Board provides a free outlet for the frank expression of any views or criticisms which may be entertained by any member of the teaching body on this or any other topic.*

Account has also to be taken of the collective wisdom of the undergraduates themselves. They are, of course, not so permanent an element in the constitution as their teachers: nothing but failure to pass

*Compare the following from the Report of the President of Yale University, 1903-4:—

"The growth of the spirit of co-operation between the several departments has been reflected in the increased interest and importance of the meetings of the University Council. The history of that body has been a little different from what was expected at the time of its foundation. It has less importance as a place for legislative action; it has more importance as a place for the interchange of ideas and the formation of public opinion. As far as the actual work of the government of the University is concerned, the different faculties can meet most of the problems as they arise; and whenever anything comes up where serious conflicts of interest between different faculties are involved, it usually has to go to the Corporation or to one of its committees for settlement, rather than to a body like the University Council. But this very absence of legislative power has increased the Council's usefulness as a field for the interchange of ideas. Numbering as it does on its roll some of the most influential members of the different departments, it gives to each of them the means of seeing matters of University finance or of inter-departmental co-operation approached from more sides and looked at from more standpoints than would be possible within the limits of a single faculty. The Council has a function analogous to that exercised by the English Parliament in the early days of its history—where the delegates from each part of England presented their views to men from the other parts, and were able to report back to their own constituents the judgments which they had thus been able to form concerning the interests of the commonwealth as a whole."

the statutory examinations could retain many of their number in the service of the University beyond the usual four year limit. But their views and opinion on matters of current interest are always entitled to a sympathetic and respectful hearing. The difficulty as to the expression of these views—for “mass meetings” of so large a body are not always an easy or effective or convenient method of giving utterance to permanent policy—has been eliminated by the institution of the Alma Mater Society, corresponding to the Students’ Representative Councils of the Scottish Universities. This body, on which personally I rely very greatly for the possibility of keeping in touch with student feeling, is invested with just as much authority as the general mass of the undergraduates may care to give it. Whether that be large or small, there is surely a great advantage in having an accredited medium, within the limits of the constitution, through which may be expressed any well-considered opinions that may be held by our undergraduates on any topic of current interest.

There remain only the graduates. McGill is rich in the affectionate loyalty of her sons, organized as they are in the various graduate societies which flourish in all the large centres of the Dominion, and also in the United States. We see too little of them here in Montreal. Perhaps, if in connexion with our annual convocation at the close of each session, a Graduates’ Day could be organized, they would have better opportunities of maintaining their local connexion, and also of offering suggestions for the advancement of McGill interests in the various districts they represent.

It is not without much gratification that I find, on referring to the Inaugural Address of nine short years ago, how much of the progress then foreshadowed has been already realized. Perhaps no more important issue was raised in that Address than the necessity for the extension and re-organization of the Faculty of Arts. If this Faculty receives the foremost place in what must be a very rapid review of our recent history, I am sure I shall have the approval of all who recognize the importance of the Arts curriculum as the essential basis of the whole University fabric. Not only have we received from three different sources the three endowed professorships to the need for which I called attention in 1896—Economics, Philosophy, Zoology—but our generous supporter, Sir William Macdonald, has greatly relieved the finances of the faculty by providing endowments also for the already existing Chairs of Botany and History. Moreover, Arts share with the sister faculty of Applied Science the gratification that another aspiration uttered nine years ago has been fulfilled in the most magnificent way

possible, viz.: that the Department of Chemistry should be provided with new laboratories of the approved modern style, and a sufficient staff to run them. Concurrently with this strengthening of its staff and equipment, the Faculty took in hand the reorganization of the academic curriculum; with the result that we may confidently assert that there is nowhere in Canada a stronger body of teachers in this department, or a more satisfactory and "up-to-date" course of study. In this reference I must not forget the organization of the Royal Victoria College, which engrossed in the earlier years much of my time and attention. That it is an important factor in the prosperity of the Faculty of Arts, which it has greatly strengthened, goes without saying. I may be allowed to recall in particular the fact that it was in the Royal Victoria College that a new branch of study, prophesied in my inaugural address, had its birth—a department destined to grow to great proportions in our future work—the Department of Music, represented now by the new Conservatorium on Sherbrooke Street. Of the significance of this new part of our educational programme there is much that I should like to say, but it may be well to reserve further comment for the opening ceremony to be held on the 14th of this month, under the illustrious auspices of His Excellency the Governor-General and the Premier of the Dominion.

The phenomenal success of the Faculty of Applied Science, which nine years ago was still a comparatively new foundation, is one of the brightest pages in our recent history. In a department which owes almost everything to a single giver, as regards both equipment and endowment, it is superfluous to enter into any detail; it should be stated, however, that the complete establishment of the Departments of Mining and Metallurgy, as well as that of Architecture, falls within the period now under review. Sir William Macdonald has his reward—if indeed he looks for any reward—in the unstinted praise which is everywhere accorded to the work of this Faculty, and most recently in the reports of the Mosely Commission. For a time it seemed as if Canada were in danger of being altogether overlooked by Mr. Mosely's Commissioners, and it is a personal satisfaction to me to recall the part I took in bringing about a visit which resulted in the admission that McGill "possesses material appliances for the development of scientific knowledge at least not inferior to any that can be found in the United States." (Report, page 164). And again: "While thoroughly equipped and doing excellent work on the literary side, McGill is particularly rich in science and applied science, and possesses in physics, chemistry, engineering and mining a staff and laboratories which are unsurpassed by those of any American university" (page

303). The commissioner who was specially charged with the duty of reporting on Canadian institutions, was particularly impressed by the proposal to open a Department of Railroad Engineering, which he characterizes as the most remarkable instance that came under his notice, in the course of his whole American tour, of the growing belief in the value of a college training. "It is significant," says Dr. Reichel, "that the most remarkable token of confidence in the value of academic work to industrial development has been furnished in connexion with McGill University. The decision of two great railway companies to establish and equip a department of railway engineering at McGill is one of immense importance to Canada. Not only will the new school enable these companies to push on their work in the North-west provinces, but it will also furnish, in the staff of officials of real scientific attainments whom it will train, a body of men who will serve as centres of industrial development of all kinds in the new districts" (page 304).

When I came to McGill the Faculty of Law had only quite recently abandoned its former status as a proprietary professional school, and taken rank as an integral part of the University. For this welcome transformation we know what we owe to our never-failing friend and supporter, Sir William Macdonald. It may be of interest to state that at Yale University a similar improvement was effected only last year. So in this respect we can say we are more than a decade ahead of Yale. The control of the University over the affairs of the Department of Law is now as complete as in the case of the other Faculties, and the change has been accomplished with the happiest results in the way of the consolidation of mutual interests. Moreover, the successful organization of the Faculty, under a new Dean, has widened the outlook of its members and friends, and should result ere long in securing some enlargement of the sphere of its operations. Till quite recently we have all felt compelled to acquiesce in the view that local conditions naturally and necessarily restrict our Law Faculty to the task of training lawyers for the Province of Quebec. The appointment of one of its best known graduates to a Professorship at Cairo was regarded at the time as a quite exceptional occurrence. In this respect the Faculty of Law has certainly stood in a somewhat different position from the other faculties—say, of Applied Science or Medicine. The young engineer or doctor who finds no room at home can always try his fortune abroad, whereas the young lawyer who has learnt the law of Quebec only cannot expect to have more than one market for his wares. That market is, of course, the Province of Quebec itself. And when we consider how large a portion of the Quebec Bar is French-Canadian, and how natural it is that all but a handful of them should get their law at

Laval, we shall not be surprised that—under existing conditions—the number of students in our Faculty of Law is not likely to receive any very large increase. It is true that a few find their way to us from British Columbia, Manitoba and the North-west Territories, where there are in the meantime no organized law schools. But on its present footing the Faculty of Law may be said, speaking broadly, to be a school of law for the lawyers and notaries of the Province of Quebec. This, of course, need not be understood as conveying the slightest disparagement or depreciation. If we confine ourselves in this department to merely provincial aims, so do three-fourths of the law schools on the American continent. We know how thoroughly our Law Faculty enjoys and deserves the confidence of the profession, which regards it as an efficient and well organized school, conferring a degree that ranks second to none. But may we not hope in any way to extend our present boundaries? Not to any great extent, I am afraid, under existing conditions. And yet it is desirable that Canada should possess a law school which shall be a Dominion and not a Provincial Institution. As we grow in nationhood, we shall need more and more trained publicists and civil servants and statesmen. Where are they to get their training? If our Law Faculty is to aid in this work, she will have to add to what she has at present a good deal that she has not. By way of making a suggestion, let me say that she will need, to begin with, a chair of English Common Law. The possession of such a chair would enable us to attract more students from the West, and would show that the ambitions of our School of Law are not limited by the boundaries of our Province.

I come now to the Faculty of Medicine. The reference made at the outset of my remarks to the inaugural ceremony held in 1829, at which the already existing School of Medicine joined hands with the infant college, will have sufficed to remind you of the fact that the history of this Faculty reaches further back almost than that of McGill itself. And in the early years of stress and struggle, when McGill College seems to have been the wrestling ground of denominational factions, it was the efficiency and prestige of the Medical Faculty that kept the College alive. Let us never forget that much of the progress of this Faculty has been due to the unselfish effort and the devoted sacrifices of many who have been at various periods associated with its teaching. Since 1896 it has seemed to have reached the high-water mark of its prosperity. It has had as many students as it could easily accommodate, and the two great hospitals with which it is so closely associated have stood forth to the world with ever-increasing efficiency as models of what such hospitals should be. Many of you will be surprised, in

these circumstances, if I here record my conviction that no department of our work requires more strengthening at the present time than the Faculty of Medicine, and that no claims for large endowments ought to take precedence of those which might be urged by the members of that faculty.

Why do I say this of a Faculty one of whose proudest boasts is that it has always been able to hold its own and to manage its own affairs without being beholden to anybody? Because the facts warrant the statement. In recent years the Faculty has been fortunate in receiving a considerable sum of money from Lord Strathcona and the members of his family, given mainly for the highly desirable and, indeed, almost indispensable purpose of extending and improving the Medical Building. Apart from this, however, and some assistance in the departments of Pathology, Physiology and Pharmacology, the Medical Faculty has in the last nine years received nothing at all from the general public, for which it does so much. If the prevailing impression is that it has no needs, or at least none that it cannot itself supply, the sooner that idea can be dissipated the better. The demands made by the various branches of medicine at the present day—always increasing with the constant advances in medical knowledge—the crying need for more specialized instruction, and for the displacement of the large lecture by the divisional or unit system, with a greater amount of detailed teaching and more personal supervision on the part of the instructor—all this combines to render the further and fuller endowment of our Medical School one of our most pressing needs, perhaps the most urgent of all. From the very earliest days of its foundation—owing to the excellent clinical instruction provided in the hospitals—our Faculty of Medicine has been a standard-bearer among the schools of the whole American Continent. We want to keep it in the van. That is the motto—*agmina ducens*—which its patron and friend, Lord Strathcona, has chosen for his coat-of-arms in the peerage of Great Britain. We want to have it also for the motto of our Faculty. Though Montreal is not quite so big a place as New York or Boston, or Philadelphia or Chicago, we must not stand idly by and see our great school of medicine lose the lead which it once obtained over the schools which are coming now to be so lavishly endowed and so magnificently equipped in those important centres. Nor do we wish to see our Canadian students of medicine tempted across the line to these or any other schools. That is why it is incumbent on this university, in view of existing conditions, to aim high in what it seeks to do for medicine. It is not enough to turn out each year a stated number of men, who are likely to become thoroughly sound and experienced

general practitioners. That is highly important, even essential, for a young and developing country like Canada, but it is not the whole duty of a medical school which aims at first rank. The reputation of such a school must be more than merely local. It will remain comparatively unknown in the greater world of scientific medicine, if it does not train a considerable proportion of men capable of making their mark in other schools, and of becoming leading authorities in some branch of medical work. This is only one aspect of the admitted fact that nowadays a university takes rank not as a teaching machine, but according to the measure of its achievements in the higher field of research and investigation. And so the training of the scientific physician, qualified to make additions to knowledge as well as to impart it to others, must continue to be a leading feature of our school. Here comes in the need for well-equipped laboratories, giving a thoroughly sound scientific training in medicine preparatory to clinical work. This is a costly business, and it will become even more costly than it is at present, with the larger number of classes that will result from the extension of the medical curriculum from four years to five. It is quite conceivable that this forward step, when it comes to be taken, will lose us some students. One of the disadvantages of the present situation is that we have to think too much of that not unimportant factor. About five-sixths of the gross revenue of the Medical Faculty are derived from students' fees; not much more than a paltry \$8,000 is derived from interest on endowments. This is a by no means secure, far less an impregnable, position, and, in my judgment, it should be remedied at the earliest possible moment. Endowments should be sought for to provide, apart from fees, the salaries of the professors who occupy the scientific chairs in the faculty—beginning with anatomy, and including physiology, pathology, pharmacology, hygiene—and salaries large enough to make certain that these chairs shall always be filled by the very best men obtainable. Then it is not quite creditable that lecturers and assistants should be asked to work for practically nothing. How can a young physician be asked to give whole-hearted service to the work of teaching for a few hundred dollars a year? And how can his chief exact from him even the routine duty required in his department, to say nothing of co-operation in research? Everybody knows that to become a first-class physiologist, or anatomist, or pathologist, or pharmacologist nowadays it is essential to devote one's whole time for many years to the one subject. Unless we can encourage our younger men to do this, where are we to look for successors to the present holders of chairs, and how are we to avoid the reproach of going abroad for them?

There is no need of the Medical Faculty—or, so far as I am aware, of any other Faculty—that cannot be supplied by money. Probably over half a million of dollars would be necessary to overtake the objects to which I have referred, and the completion of the buildings—with new dissecting rooms, library, museum, etc.—as well as an adequate fund for maintenance and equipment, would call for as much again. Do not let us be dismayed by the figures. Within this last year Harvard has been assured of no less than ten million dollars for the building and fuller equipment of her medical school, and Chicago—now that the Rush Medical College has been joined to the University—is promised as much and more. There is no department of our work that has greater claims on the good will of the public than that which centres round the art of healing. It is not more doctors that we aim at turning out, but better doctors—men who have had the best available advantages in equipping themselves for the practice of the most honourable—and onerous—of all professions. The McGill Medical Faculty has done noble work in the past, and I am confident that—as soon as it needs are properly understood—it will receive such a degree of support from an appreciative community as shall enable it to keep pace with the ever-growing demands of medical teaching and medical science.

When I say that there is no McGill want that money will not supply, I do not want to be quoted as implying that money is everything. Dollars will not create the spirit that ought to animate our work—the spirit of earnest devotion to the highest interest of the cause we serve. It is because that spirit already exists in McGill that its friends and supporters may confidently appeal for further financial aid. Gratitude for past favours need not debar us from cherishing a lively expectation of favours still to come. The present administration of the University has received some signal marks of trust and confidence. In looking back on the nine years that have passed since 1895, I cannot forget the kindness of the late Mr. John Henry Molson, who was Chairman of the Board of Governors when I came to McGill. As Chairman also of the Finance Committee, Mr. Molson had a very heavy load to carry. He knew the needs of the University in all its departments, and was greatly oppressed at times—as all finance chairmen must be—by the constant recurring difficulty of making both ends meet. Yet when he died, it was found that he had given the administration a most signal mark of confidence by bequeathing the sum of one hundred thousand dollars for the General Endowment Fund of the University. Some of the greatest gifts he made us during his life time were marked by the same spirit of self-effacing devotion to the general interest. He gave the

ground on which the Redpath Library stands, and (in 1893) he gave \$60,000 for the purchase of land and for buildings and equipment for the Faculty of Medicine. If his name is not connected with either of these great donations, his memory remains none the less deep-graven in our hearts. It is on a portion of the lots he acquired on McTavish Street that Mrs. Peter Redpath's most welcome and valuable extension of the Library was erected in 1900.

Permit me now to indicate very briefly the lines on which the consolidation and extension of our work as a University should, according to my best judgment, be made to proceed.

I believe, in the first place, that if the time is not yet come it will soon be at hand when McGill ought very seriously to consider whether it will allow boys to go direct from school into any of the professional faculties without taking at least a partial course in Arts as a preliminary. In Medicine the curriculum has everything to gain by having physics, chemistry and biology eliminated, and taken in the Faculty of Arts as introductory. The best preparation for the law course is a preliminary study of such subjects as History and Political Science. As for the Faculty of Applied Science, if the needs of a developing country have been calling out for young engineers, the dignity of the engineering profession no less demands that they shall be as fully educated as possible. An utterance may be cited in this connexion which I once heard from the lips of President Eliot, of Harvard: "When all the leading Universities of the country require a degree in Arts or Science for admission to their professional schools—of law, medicine, divinity, teaching, architecture and applied science—an effective support will be given to the Bachelor's degree in Arts and Science such as has never yet been given in the United States; and the higher walks of all the professions will be filled with men who have received not only a strenuous professional training, but a broad preliminary culture." So, too, President Butler, of Columbia: "For a University to admit professional students direct from the secondary schools is to throw the weight of its influence against the spirit and ideals of college training, and to prepare for the so-called learned professions a large body of very imperfectly educated men."

This takes me back to the Faculty of Arts, in the recent reorganization of whose courses we had ever in view the aim of making an organic connexion with the several departments of professional study. One link is still wanting—the Chair of Education that is to lead up to the activity of teaching. When that has been supplied, the holder of the Chair—with the Normal School as his laboratory—will be able to

impress himself upon the whole education of the province, if not of the country at large. Meanwhile any prospective donors who may prefer to help us to strengthen and to consolidate work already undertaken will allow us to remind them that the Department of Modern Languages is utterly without endowment of any kind. We ought to have two chairs here, one of Teutonic and the other of Romance Languages and Literature. The energy which Dr. Walter devoted this year to the successful organization of a summer school of French, may be expected to draw fresh attention to the needs of this most important department. I say nothing of classics; that subject would need a lecture in itself. It is possible to obtain that "reasonable tincture of letters" for which Professor Macnaughton pleaded last year without any excessive devotion to classical study. But the friends of the classics may refer, with pardonable pride, to the "rush back to Latin" which is going on at present in the United States, and which seems to amount almost to a rediscovery in that country of what I have elsewhere called the logic of grammar. Another sign of the times is the establishment of two flourishing Classical Associations, the one in Scotland and the other in England, the members of which propose not only to give reasons for the faith that is in them, but also to question others as to theirs. Personally, I should be the last to advocate the claims of classical study if these claims necessarily involved ignorance of the world we live in and of the natural phenomena that are about and around us. Education is meant to lead us into active life, not out of it. At the same time the brilliant discoveries of natural science, which have taught us much that our grandfathers did not know, need not induce the rapid inference that what our grandfathers did not know must necessarily have been useless knowledge. If my own connexion with the classical department at McGill has resulted in any broader views of classical study—such as I pleaded for nine years ago—then in this department also we may claim that some progress has been made.

The fortunate settlement of the long-standing controversy with Ontario, on the subject of the recognition of McGill degrees for certain purposes in that province, induces the hope that we may witness in future a greater amount of reciprocity among Canadian Universities. In early days it was perhaps not altogether unnatural that our great educational institutions, separated from each other by immense distances, should have lived apart as it were, and should have been tempted to cultivate separate interests. This has not made for unity, either of methods or of feeling and sentiment. Now that we note some slight disposition to lower the provincial boundary-fences we may perhaps hope for better things. The Universities in various parts of the United States can agree to act together, when expedient, on matters

of common interest; why should not we? It is not necessary or even advisable that all our Universities should be moulded after the same pattern. They have all their own proper work to do. Each will in all probability develop on the lines that are most suited to its circumstances and its situation. There should therefore be less rivalry, less jealousy in the future—less belittling of each other and a greater effort to present a united front in what is after all a common cause. Some people make a great bugaboo of the British North America Act, which committed the interests of education to the several provinces. In those early days that was probably altogether a wise measure, and the Federal Government must often have had occasion since to congratulate itself that—so far as education is concerned—it could keep itself in a large measure outside the arena of provincial strife. But the education that was thought of mainly at the time of the framing of the Act was school education. The great subject of technical education, for example, had scarcely been heard of. This has been brought home to us in connexion with our new school of Railroad Engineering, which ought to be thoroughly national in character. There is certainly nothing provincial about its origin or its aims. Again, when last year we were forced by circumstances to abandon our Faculty of Veterinary Science, it was not without the hope that it might one day be revived on a larger scale. In view of the bearing of the teaching given in that Faculty on the greatest of all our national interests—the interests of agriculture—it is matter of great regret that we should have felt obliged to relinquish it. The whole Dominion might profit by the institution—in connexion with one of our leading Universities—of a great national school of Agriculture, or Agronomics, one branch of which, as at Cornell, would be veterinary science. I am one of those who believe that it is the duty of a University to make itself of service to the country at large by associating itself with all its leading interests. In so wide a field as that there is room for all who will co-operate—room for the Federal Government, too, if it can be induced to come in. Meanwhile we ought to cherish, in all that concerns University education, the spirit of co-operation and mutual helpfulness. The need for that in Canada was very much in my thoughts last year when I sat as your representative at an imperial University Conference which met in London. High argument was addressed to the audience by various speakers on behalf of imperial unity in education—the dissemination of a better knowledge of what is going on in our Universities throughout the length and breadth of the Empire, the cultivation of mutual interests, the furtherance of common aims, a sort of Federation of the Empire, in fact, through education. I could not help thinking, as I listened, that here in Canada we had

better begin at home. The times are not unfavourable for such a rapprochement. We must not let the Empire get ahead of the Dominion. Here in McGill we have accustomed ourselves to take wide and broad views. That is why we have special reason to rejoice in everything that tends to promote the unification of our national interests, both in act and in sentiment. There have always been some who felt a difficulty over the fact that the educational institutions of our Colonies have been manned to a large extent from the great British Universities. Now, the tide is beginning to flow the other way. Only a few months ago the Royal Society of London came to McGill to borrow Professor Rutherford for the purposes of the Bakerian Lecture. And along with the first flight of Rhodes scholars to Oxford goes our most illustrious alumnus Dr. William Osler. This process of interchange will doubtless go on increasing as the years roll on. "The result," as our friend Dr. Parkin writes in a paper which he has just forwarded to me, "The result cannot be otherwise than healthy and inspiring. Able men in the Motherland will go abroad more readily when they know that distinction won there counts at the centre. Able men born abroad in the Colonies will know that the pathway to recognition is freely open to them in whatever corner of the Empire they may happen to be. Everything of this kind counts for the unification of the nation, in work, in interest, in sentiment. It makes for continuity as well. The distinguished Canadian man of science, coming to hold up at Oxford his lamp of knowledge lighted there in the thirteenth century by Roger Bacon is a truer prophecy of the future of the Empire, we may fairly hope, than Macaulay's New Zealander contemplating the ruins of St. Paul's from a broken arch of London Bridge."

Members of Convocation, Ladies and Gentlemen,—I have made it my aim in this address to gather up the lessons of our recent past, and to estimate the educational position which we find McGill occupying after three-quarters of a century of almost uninterrupted teaching. We have much reason to rejoice together over what has already been accomplished, and also to go forward with good hope into the future. In point of solid progress we could hardly wish the record other than what it has been. McGill stands deservedly high among the learned institutions of the Dominion and of the Empire. In this respect it never stood higher than it does to-day. But it is a trite remark that learning is not everything; not all knowledge is power. Perhaps in the time to come, with the greater social advantages that are now to be at the command of the student body—with our Union, and let us hope, soon too, our Halls of Residence—the university may come to be as widely known as a school of manners, in the broad sense of the term, as it is at present for learning and solid work. You know the old motto of

William of Wykeham, who founded Winchester and New College, Oxford: "Manners makyth man." Too little attention is paid in our educational programmes to the upbuilding of character. When we think of the unspeakable importance of the years which our young men spend at college, as a preparation for their after life, our hearts must yearn to do more for them than under present conditions we are able to accomplish. Manners are formed and personality is built up in the school of life—even the student school. Honesty, purity, reverence—all the moral virtues, in fact, are just as important for the youth of a country as are learning and scholarship. "Manners makyth man." We want to have a hall mark for McGill men, by which they may be known and recognized all the world over. It lies with our students themselves to set the standard. What we wish to do is to give them all the help we can to make the most of their advantages while they are with us. College days are soon over, and they leave with the individual either the satisfaction of strenuous effort or the memory of neglected opportunities. "How truly it is in man," as Mr. Gladstone said to the students at Edinburgh, "in man, and not in his circumstances, that the secret of his destiny resides. For most of you that destiny will take its final bent towards evil or towards good, not from the information you imbibe, but from the habits of mind, thought and life that you shall acquire during your academic career. Could you, with the bodily eye, watch the moments of it as they fly, you would see them all pass by you, as the bee that has rifled the heather bears its honey through the air, charged with the promise, or it may be with the menace, of the future. In many things it is wise to believe before experience; to believe until you may know; and believe me when I tell you that the thrift of time will repay you in after life with an usury of profit beyond your most sanguine dreams, and that the waste of it will make you dwindle, alike, in intellectual and in moral stature, beneath your darkest reckonings."

**EMPYEMA OF THE RIGHT SPHENOIDAL CAVITY AND
POSTERIOR ETHMOIDAL CELLS, ASSOCIATED
WITH COMPLETE OCCLUSION OF THE
RIGHT POSTERIOR NARIS.**

BY

ROBERT H. CRAIG, M.D.

Laryngologist, Western General Hospital.

Rouge was the first to observe by post-mortem examination chronic empyema of the sphenoidal cavity. The case was that of a lady, who during life had suffered from nasal speech exophthalmos, strabismus, and

pain in the upper teeth. Before death, left-sided deafness and blindness were added to the symptoms. Post-mortem examination revealed the sphenoidal cavity full of cheesy pus.

In a paper which I published in the *New York Medical Journal*, March 24th, 1900, I endeavoured to show the intimate relationship which often exists between empyema of the accessory nasal cavities and inflammatory diseases of the base of the brain. Since that time my observations have extended along similar lines, and while it has been my privilege to observe and treat both in private and hospital practice many cases of empyema of the accessory nasal cavities, I have found the above relationship very often existing; but, in the case which I wish to report, the empyema was evidently an open one. Consequently, brain symptoms were wanting, apart from the headache and apathy exhibited by the child in her studies. The first observations of empyema of the sphenoidal cavity on the living subject were made by Schaffer, and since the report of his case, many have been recorded in the literature by such competent authorities as Hajek, Grunwald and others. The time at my disposal will not permit me to refer to a consideration of the etiology or diagnosis of sphenoidal empyema, and I shall therefore proceed at once to a report of the case.

A. B., female, aged seven and a half years, was brought to my office on July 25th, 1903, by her mother, who stated that the child was suffering from headache, deafness, discharge from the nose and inability to breathe freely through the nostrils. The aural and nasal trouble dated from a very virulent attack of scarlet-fever from which the patient suffered two and a half years previous to consulting me. The only local treatment adopted during and after the fever was a daily cleansing of the nostrils and ears by a mild antiseptic lotion. Examination revealed a fairly well-nourished girl of listless appearance. Cardiac, digestive and genito-urinary systems were normal.

Nasal examination showed a profuse purulent foetid discharge from both nostrils. The septum was deflected to the right. Examination with a probe revealed complete occlusion of the lower posterior third of the right nostril, and, owing to its narrowness, examination of the upper half of the nostril was impossible. There was considerable pus in the left nostril, and the middle turbinal bone was enlarged. Examination of the nasao-pharynx and pharynx revealed a large postnasal growth and hypertrophied tonsils. The ears were discharging freely; both drum membranes and the ossicles were destroyed. The following day I removed the postnasal growth and the enlarged tonsils. After the removal of the adenoid growth, I explored with my finger the posterior nares, and was surprised to find that the right posterior naris was about

one-third the size of the left in all its dimensions. Following the operation, the nostrils and ears were thoroughly cleansed, and the breathing improved considerably, but in spite of daily frequent irrigations, the discharge did not diminish perceptibly. At the end of three weeks I decided to explore the right nostril thoroughly, and the patient was again anaesthetized. The pus appeared to originate in the posterior superior half of the nostril. I endeavoured with a probe to ascertain the normal opening in the anterior wall of the sphenoid, but did not succeed, and the nostril was too narrow to permit of good illumination. The distance from the centre of the anterior sphenoidal wall from the anterior nasal spine was found to be two inches. I removed the inferior turbinal with scissors and snare in order to obtain more space, and drilled through the anterior wall of the sphenoid at its lower third. Foetid pus flowed very freely. The opening was enlarged and the cavity thoroughly irrigated with a mild boracic acid solution. I did not think it wise to curette the cavity on account of its close proximity to vital structures, and was content to establish free drainage. I then proceeded to make a communication between the nasal cavity and postnasal space, and met with considerable difficulty, on account of the hardness of the bone and the small space to work in. I eventually succeeded, and placed a hard rubber drainage tube in the opening thus made. The hæmorrhage, which was profuse during the operation, was controlled from time to time by applications of a watery solution made from suprarenal powder. Following the operation, the nostrils were cleansed daily for a period of two weeks, and as the patient showed marked signs of improvement, the mother, much against my advice, decided to take her daughter home. She returned to Montreal two weeks later. Nasal examination then showed the opening in the postnasal space almost filled with granulations, and there was still considerable pus in the nostril. The patient was again anaesthetized, and as pus was seen coming from the region of the ethmoidal cells, I opened the posterior group, freely re-established the opening into the postnasal space, and with an Asche's forcep I fractured the septum as far back as the posterior naris, and inserted a special perforated splint.

One month following the above operation, suitable and appropriate treatment having been carried out in the interim, the nostrils and ears were almost free from pus, and there was and is at the present time a free communication between the right nostril and right postnasal space. Unfortunately, on account of the complete destruction of the ossicles, the hearing only shows a moderate degree of improvement.

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THE MCGILL UNIVERSITY LECTURE AND THE MEDICAL FACULTY.

It is encouraging to hear from a layman words upon professional matters which express our own feelings. Apart from the force which they gain from apt expression, they have a force all their own in that, rendering our thoughts and aspirations, they come, as it were, from outside. Whilst admitting that it is the duty of the head of a University—be he Chancellor or Vice-Chancellor, President or Principal—to be intimately acquainted with the work and needs of every Faculty, and to be abreast of every movement which tends to raise the standard and develop the resources of each branch of educational activity under his care, we cannot but be gladdened when we find that Principal Peterson's valuation of our labours and needs is the valuation which we ourselves would give.

It is a happy idea to establish in McGill University a Founder's Day, and it was appropriate that, in so doing, Principal Peterson should seize

the opportunity to look backwards over the seventy-five years during which the University has been established, and to foreshadow future progress. And in this address he laid particular emphasis upon the Medical Faculty; the honourable part which it played in the past rendered the University possible; he dwelt upon its present high standing, its urgent needs if it is to retain that position amongst the great schools of this continent, which, through the labours of past generations and of the present, it has attained. His words were so much to the point that we gladly repeat them in their entirety:—An earlier reference to the inaugural ceremony in 1829 will, said he, “have sufficed to remind you of the fact that the history of this Society reaches further back almost than that of McGill itself. And, in the early years of stress and struggle, when McGill College seems to have been the wrestling-ground of denominational factions, it was the efficiency and prestige of the Medical Faculty that kept the college alive. Let us never forget that much of the progress of this Faculty has been due to the unselfish effort and the devoted sacrifices of many who have been at various periods associated with its teaching.

“Since 1896 it has seemed to have reached the high water mark of its prosperity. It has had as many students as it could easily accommodate, and the two great hospitals with which it is so closely associated have stood forth to the world with ever-increasing efficiency as models of what such hospitals should be. Many of you will be surprised, in these circumstances, if I here record my conviction, that no department of our work requires more strengthening at the present time than the Faculty of Medicine, and that no claims for large endowments ought to take precedence of those which might be urged by the members of this Faculty.

“Why do I say this of a faculty, one of whose proudest boasts is that it has always been able to hold its own and to manage its own affairs without being beholden to anyone? Because the facts warrant the statement. In recent years the Faculty has been fortunate in receiving sums of money from Lord Strathcona and the members of his family, given mainly for the highly desirable and, indeed, almost indispensable purpose of extending and improving the Medical Building. Apart from this, however, and some assistance in the departments of Pathology, Physiology and Pharmacology, the Medical Faculty has, in the last nine years, received nothing at all from the general public, for which it does so much. If the prevailing impression is that it has no needs, or at least none that it cannot itself supply, the sooner that idea can be dissipated the better. The demands made by the various branches of medicine at the present day—always increasing with the constant advances in medical knowledge

—the crying need for more specialized instruction, and for the displacement of the large lecture by the divisional or unit system, with a greater amount of detailed teaching and more personal supervision on the part of the instructor—all this combines to render the further and fuller endowment of our Medical School one of our most pressing needs, perhaps the most urgent of all.

“From the very earliest days of its foundation—owing to the excellent clinical instruction provided in the hospitals—our Faculty of Medicine has been a standard-bearer among the schools of the whole American continent. We want to keep it in the van. That is the motto—*Agima ducens*—which its patron and friend, Lord Strathcona, has chosen for his coat-of-arms in the peerage of Great Britain. We want to have it also for the motto of our Faculty. Though Montreal is not quite so big a place as New York or Boston, or Philadelphia or Chicago, we must not stand idly by and see our great school of medicine lose the lead which it once obtained over the schools which are coming now to be so lavishly endowed and so magnificently equipped in those important centres. Nor do we wish to see our Canadian students of medicine tempted across the line to these or any other schools. That is why it is incumbent on this University, in view of existing conditions, to aim high in what it seeks to do for medicine. It is not enough to turn out each year a stated number of men who are likely to become thoroughly sound and experienced general practitioners; that is highly important, even essential, for a young and developing country like Canada; but it is not the whole duty of a medical school which aims at first rank. The reputation of such a school must be more than merely local. It will remain comparatively unknown in the greater world of scientific medicine if it does not train a considerable proportion of men capable of making their mark in other schools and of becoming leading authorities in some branch of medical work. This is only one aspect of the admitted fact that nowadays a university takes rank, not as a teaching machine, but according to the measures of its achievements in the higher field of research and investigation. And so the training of the scientific physician, qualified to make additions to knowledge as well as to impart it to others, must continue to be a leading feature of our school.

“Here comes the need for well-equipped laboratories, giving a thoroughly sound scientific training in medicine preparatory to clinical work. This is a costly business, and it will become even more costly than it is at present with the larger number of classes that will result from the extension of the medical curriculum from four years to five. It is quite conceivable that this forward step, when it comes to be taken, will lose us some students. One of the disadvantages of the present system is

that we have to think too much of that not unimportant factor. About five-sixths of the gross revenue of the Medical Faculty are derived from students' fees; not much more than a paltry \$8,000 is derived from interest on endowments. This is by no means a secure, far less an impregnable position, and, in my judgment, it should be remedied at the earliest possible moment. Endowments should be sought for to provide apart from fees the salaries of the professors who occupy the scientific chairs in the Faculty, beginning with Anatomy and including Physiology, Pharmacology, Hygiene—salaries large enough to make certain that these chairs shall always be filled by the very best men obtainable.

"Then it is not quite creditable that lecturers and assistants should be asked to work for practically nothing. How can a young physician be asked to give whole-hearted service to the work of teaching for a few hundred dollars a year? and how can his chief exact from him even the routine duty required in his department, to say nothing of co-operation in research? Everybody knows that to become a first-class physiologist or anatomist or pathologist or pharmacologist nowadays, it is essential to devote one's whole time for many years to the one subject. Unless we can encourage our younger men to do this, where are we to look for successors to the present holders of chairs, and how are we to avoid the reproach of going abroad for them? There is no need in the Medical Faculty—or, so far as I am aware, of any other Faculty—that cannot be supplied by money. Probably over half a million of dollars would be necessary to overtake the objects to which I have referred, and the completion of the buildings, with new dissecting rooms, library, museum, etc., as well as an adequate fund for maintenance and equipment, would call for as much again. Do not let us be dismayed by the figures. Within this last year Harvard has been assured of no less than ten million dollars for the building and fuller equipment of her medical school, and Chicago—now that the Rush Medical College has been joined to the University—is promised as much more.

"There is no department of our work that has greater claims on the good will of the public than that which centres around the art of healing. It is not more doctors that we aim to turn out, but better doctors—men who have had the best available advantages in equipping themselves for the practice of the most honourable and onerous of all professions. The McGill Medical Faculty has done noble work in the past, and I am confident that—as soon as its needs are properly understood—it will receive a degree of support from an appreciative community as shall enable it to keep pace with the ever-growing demands of medical teaching and medical science."

Briefly, but most powerfully, Principal Peterson has indicated the present status of the Medical Faculty and its needs, and his plea is most timely, for at this very moment it stands at the parting of the ways. So necessary to the community is it that medical practitioners be fully equipped for their work, so much is that work expanding and so expensive has a sound, thorough education become, that the fees that can be exacted from the students no longer suffice to pay for that education, and, for the good of the community, the wealthy and public spirited in other large centres on this continent have of late come forth nobly with endowments and buildings for medical schools. Those endowments, at first sight, appear to be lavish. We in Montreal cannot expect to approach the ten millions which Harvard has received, the like sum that is promised to the Chicago School, the five millions said to be given to the Cornell School in New York. Sums so great as these are not needed in McGill, for the greater part of the gift in each of these cases is to be devoted to the establishment and endowment of a university hospital and to school buildings. Happily, Montreal already possesses such hospitals and the greater part of its school buildings. But still much is required, and, unless this is obtained and is obtained in the near future, it is evident that the school must fall behind in its standing and in the good that it can accomplish.

The Principal has well indicated the direction in which aid is needed; professorial endowments, to assure that the best men are appointed and are retained; due payment of lecturers and demonstrators, who now are asked to work loyally for a mere pittance; payment adequate to assure that in each department there shall be those of the junior staff, who, devoting themselves wholly to their subject for some years, will no longer be amateurs, but will become experts and authorities, so that the Faculty will not be compelled to go abroad to select heads of departments; funds for the further development of such essential features of a good school as the medical library and the museums of anatomy and pathology. Much could be said under each of these headings. We hope in the future to treat of each in some detail. We would, in this connexion, point out that it is well worth comparing the Principal's plea with Professor Abbott's well-reasoned address, printed in our last number. Layman and professional man, it will be seen, arrive at the same results and make a like appeal.

THE NEW PHYSIOLOGY.

A revelation has been made to this Journal through the medium of a circular letter from Albert J. Atkins, M.D., Professor of Physiology in the California Medical College, President of the San Francisco County

Society of Physicians and Surgeons, and Member of the Astronomical Society of the Pacific Coast. Dr. Atkins has apprehended the force of the objections which have been made to all previous revelations that they have not been attested to the satisfaction of men of plain common sense, and accordingly he has added the names of his witnesses, a practice we could wish had been more commonly followed in times gone by. Dr. Atkins' discovery, in short, is "the electrical reaction of the life principle in the living lungs." We have no desire to usurp the chair of the scorner, nor are we blind to the excess of vivacity which induced Dr. Atkins to reveal his discovery in a type-written letter of less than a score of lines. Indeed, there is much to commend in the practice, having in mind the laborious elaboration of less important discoveries in the current scientific literature.

For conciseness and brevity and obedience to the old Egyptian commandment, "thou shalt not multiply words in speaking," this communication stands alone. The experiment rivals in simplicity Galvani's observation upon the frog's legs or Newton's upon the fall of the apple: "Tracheotomy was performed on a living sheep; two especially prepared, small, platinum electrodes were inserted through the opening into the cavity of each lung. These platinum electrodes were attached by about thirty feet of insulated copper wire to a Weston galvanometer. The instant the electrodes reached the air-chambers of the lungs, the needle of the galvanometer moved from zero point, alternately to the right and to the left, the full length of the scale, at each breath of the animal. This action proves conclusively that there is an electrical current in the living lungs; also, that the current alternates from positive to negative, with perfect rhythm, at each breath of the animal."

We do not see our way to deny the truth of this observation, that there is an electric current in the living lungs, in view of the experiments with which prehistoric physiologists used to amuse us in the fresh days of our youth. Electrodes would be placed upon the base and apex of the heart, upon the upper and lower surface of the tongue, and the galvanometer was observed to indicate certain electrical reactions. That may have been an illusion, but it seemed real enough at the time.

Nor do we feel specially commissioned by Providence to estimate the bearing of this discovery upon the "life principle." Whether the life principle have an electrical reaction or not we cannot say. Our mind has always been occupied with humbler topics; yet we feel quite sure that all active tissues exhibit an electro-negative reaction. The phenomenon has been witnessed in the brain of a moderate-sized rabbit. Persons who are interested in this fascinating subject will

recall Professor Waller's laborious experiments upon the electrical reactions which are observed in living and dying tissues. That humble experimenter utilized the eye of the codfish as a beginning, but he declared, anticipating Professor Atkins, we fancy, that a sheep's head would serve equally well, and he stumbled upon the profound discovery that "Schafkopfs" are as common in laboratories as in any other sphere of life. This may appear to be a great deal of writing about a small matter, but the incident illustrates well the hasty utterance which attends so much scientific work. The late Mr. Huxley had occasion to employ an Irish carman and charged him to drive fast. The man set off at a gallop. "Do you know where you are going?" cried Huxley. "No, yer hanner; but annyway I'm drivin fast."

Among the events of interest during the past month was the visit of Dr. Paul Courmont, of the University of Lyons, on his way from St. Louis. The interest lay in his presentation of his case for the serum-diagnosis of tuberculosis, a subject which he has made peculiarly his own. Dr. Courmont gave demonstrations of his methods before members of the profession at McGill and again at Laval, where all who had the privilege of hearing him were charmed by his lucidity of thought, his perfection of utterance and the singular attractiveness of his personality.

The enrollment of students for the session of 1904-5 at McGill University is 370 in Medicine, 297 in Arts, 370 in Applied Science and 28 in Law, making a total in all faculties of 1,065. According to the report for 1902-03, which is the last published, the students in Medicine were 435, in Arts 329, in Science 286 and in Law 40, making a total of 1,090. The decrease in the Faculty of Arts is fully explainable by the new regulations governing partial students. The increase in Science is gratifying, but the diminished numbers in Law and Medicine is a matter which is worthy of investigation. The decrease is probably temporary, and due to the raising of the standard.

The controversy between the educational authorities of Ontario and McGill is at an end. Hitherto, graduates of McGill were debarred from teaching in the high schools of Ontario unless they would pass an additional examination. According to the new regulations, Article 51 has been changed to read that "any person who obtains a degree in arts in the honour department of Mathematics, Science, Classics, English, and History, Moderns and History, or French and German, as specified in the calendar of any University in Canada," etc. McGill has agreed to alter such of the courses as at present do not conform with the Ontario regulations. The changes, however, are insignificant.

Reviews and Notices of Books.

LECTURES TO GENERAL PRACTITIONERS ON THE DISEASES OF THE STOMACH AND INTESTINES. By BOARDMAN REED, M.D. An octavo volume of 1,021 pages. Price \$5.00. E. B. Treat & Co., New York.

"In this volume of lectures the attempt has been made to furnish a plain and unpretentious but practically complete clinical guide to the diagnosis and treatment of the diseases in question." With these words the author broadly outlines his work, and the attempt has been in a high degree successful. As the title indicates, the subject matter of the book is presented in the form of lectures. This mode of dealing with such a large subject in book form, while it can scarcely be considered as beyond the experimental stage, has much to commend it.

Eighty-two lectures, comprising the volume, are grouped in four parts. In Part I. the anatomical, physiological, chemical and diagnostic data are presented in three lectures. In Part II. the methods of examination are considered in twelve lectures. Part III. comprises the methods of treatment discussed in twenty-four lectures, while forty-seven lectures, making up Part IV., or more than half the book, are styled "The Gastro-Intestinal Clinic." The individual gastro-intestinal diseases are herein considered. A lecture on "Diseases of the Rectum and Anus" is contributed by Dr. Collier F. Martin, of Philadelphia. There are one hundred and twelve illustrations. "A Symtomatic Guide to Diagnosis"—lecture xv.—is considered a "unique feature," but its utility is open to question.

This work is too large to justify an attempt at a complete review, but a perusal of the greater part enables one to state that it is full of the author's experience and reflects the results of years of careful observation. His remarks on treatment are good, and may, when drugs are in such requisition as they are to-day, well be considered. "Sufficient is not known to prove beyond question that by means of appropriate diet, in connexion with rest and exercise, much more can be accomplished in many diseases of the digestive organs than is possible of accomplishment through the use of drugs or any other form of therapy alone." In this country a physician runs the risk of being considered eccentric if he does not make drug treatment his first and principal resource in the management of the digestive disorders as well as in all other diseases."

The objection to the book, if one might be raised, is that it contains too many words. The text is clear, and the illustrations, are helpful. The volume may be considered as a very valuable addition to the library of both the general and special practitioner.

W. F. H.

THE PRINCIPLES AND PRACTICE OF GYNÆCOLOGY FOR STUDENTS AND PRACTITIONERS. By E. C. DUDLEY, A.M., M.D., Professor of Gynæcology in the North-Western University Medical School, Chicago. Fourth Edition, revised, with 419 illustrations in colours and monochrome. Lea Brothers & Co., Philadelphia and New York.

The first edition of Professor Dudley's book appeared in 1898, and now in 1904 we have the fourth. Four editions of a medical text-book in six years amply prove its popularity and value. The dedication continues to be to the venerable Emmet, of New York, whose pupil the author formerly was. As in the earlier editions, Dudley adopts a somewhat unusual classification of subjects. Instead of grouping together all the diverse morbid affections of one special organ, he has, as far as possible, arranged them in pathological and etiological sequence. To quote further from the author's preface, "for example, infections and inflammations are brought together so that vulvovaginitis, metritis, salpingitis, ovaritis, peritonitis and cellulitis may be studied in the combined forms which they ordinarily assume. In like manner tumours are treated in another part, traumatisms in another and displacements in another."

The text has undergone extensive revision, and all the borrowed illustrations of previous editions have been rejected, and three hundred new ones, all reproduced from drawings specially made for the book, have been introduced. A somewhat careful examination of the work amply justifies the author's claim in the matter of illustrations. In this particular no text-book we know for the student and ordinary practitioner can compare with Dr. Dudley's.

We presume he does not challenge comparison with Kelly's monumental work. In descending to particulars, we first notice the author's remarks on the treatment of acute puerperal metritis, the management of which is of so great interest to the obstetrician and gynæcologist. There is much difference of opinion. Is it wise to curette? There are enthusiastic advocates and there are unflinching opponents. The author's teaching is commendable. It is conservative, and inclines to its restriction to exceptional cases, where, if employed, it should be so thoroughly done by a sharp curette that every vestige should be removed. But the operation is by no means free from danger. There can be no doubt that it has sometimes killed the patient. We submit that the evidence in its favour is of very doubtful value.

On the question of the more radical operations for cancer of the uterus, these by which cellular tissue and lymphatic glands are exten-

sively removed by abdominal section, possibly combined with vaginal section, the author is coldly sceptical; and when he says that (foot of page 413), "the increased traumatism, great difficulty of technique, and, above all, the time required, would probably increase the mortality of the operation enough to offset any possible advantage," we thoroughly agree with him, while commending the laudable desire manifested by the advocates of such operations to do the best we can for the sufferers from this dread disease.

Of vaginal section, anterior and posterior, the author speaks approvingly for selected cases, a position in which he is in accord with what we consider to be the best teaching.

Of vaginal hysterraphy or fixation, while he describes it, the author does not approve, and gives for reasons the generally admitted facts that unless there is a broad and firm adhesion established, it is apt to give way, and the displacement return, while if the adhesion be broad and firm and pregnancy occur, there is great danger of difficult labour. Numerous such cases have been reported, some fatal, in which Caesarean section and other obstetric operations had been done.

Concerning the operation devised by the author for antifixion, he continues to be satisfied, while speaking modestly and temperately of it and its limitations. He quotes with evident pleasure the favourable reports of Wadsworth and Reynolds, of Boston.

The descriptions of operations are very clear, while all the more common and established ones are copiously illustrated at every step. Many gynæcological operations are difficult to describe, and cannot be shown to more than a few students at once. Hence the great value of good illustrations.

Of that most interesting but terrible and most malignant of all neoplasms, the deciduoma malignum or chorion epithelioma, the description is very brief and without illustrations, either of gross or minute appearance. We submit that the omission is, to say the least, unfortunate.

Dr. Dudley's book is of such a high degree of excellence that there is extremely little to criticize, and of many books in the market it is one of the very best.

A TEXT-BOOK OF DISEASES OF WOMEN. By CHARLES B. PENROSE, M.D., Ph.D., Surgeon to the Gyneccean Hospital of Philadelphia. W. B. Saunders & Co., Philadelphia, New York and London. J. A. Carveth & Co., Toronto.

Of text-books for the enlightenment of the student and practitioner of gynæcology there is no lack. If we are to judge from numerous

editions in a short space of time, this is one of the best. We have now before us the fifth in seven years, and the book has been much improved. A cursory examination seems to justify the faith in it shown by medical teachers and students. The author's claim that he has attempted to present the best teaching of modern gynæcology untrammelled by antiquated theories or modes of treatment is well sustained. For facts of anatomy, physiology and pathology the student is referred to larger books.

We cordially approve of the first chapter on the general causes of diseases of women. That part of it which treats of improper clothing and modes of life, such as irregular hours for sleeping and eating, of neglect during early menstrual life, and of the unphysiological modern methods of the education of young girls, should be authoritatively impressed on all mothers or guardians and teachers of young girls.

One naturally examines the book to find how the author deals with the burning questions of the day in gynæcological matters. Of the relatively modern and, by some, much-lauded vaginal section for the correction of uterine displacements and the dealing with a variety of other morbid conditions of the female pelvic organs there is no mention that we can find. The same is to be said of that most fatal of all the malignant diseases of the uterus, chorion epithelioma or deciduoma malignum. These are omissions which, we think, are not to be excused, even in a text-book written especially with a view to the needs of the medical student. If briefly considered, they would not have added materially to the size of the book. With the exception of these criticisms, we have much praise for this work. Its dogmatic method of teaching is certainly the best for the student. The publishers' part is most praiseworthy. The relatively slight glazing of the paper makes the book comfortable to read, while the type and illustrations are perfectly clear.

KIRKE'S HANDBOOK OF PHYSIOLOGY. Revised by FREDERICK C. BUSCH, B.S., M.D., Professor of Physiology in the Medical Department of the University of Buffalo. Fifth American Edition. William Wood & Co., New York.

During recent years there have been two different text-books upon the Canadian market bearing the title of "Kirke's Handbook of Physiology." One of these has been published in England under the editorship of Prof. W. D. Halliburton, and claims to be the only genuine and authorized edition. The other is the one before us. On comparing the two, we find that they have many illustrations and occasional paragraphs of letter-press in common, but they differ from one another

so much that one would hardly discover for himself that they had a common origin.

Under Halliburton's editorship the handbook has made a great name for itself, and has been so much changed and, we may say, improved, that it has seemed good to the English publishers to drop the name of Kirke entirely, and it will henceforth be known as "Halliburton's Handbook of Physiology."

Professor Busch seems to have incorporated in his text many good points from former English editions, and has inserted some additional matter of his own, so that, on the whole, his text-book is a good one, but when we compare it with the authorized edition by Halliburton, we find the latter so generally superior in soundness and completeness that we cannot recommend the American in preference to the English edition.

VON BERGMANN'S SURGERY. A System of Practical Surgery. Drs. E. VON BERGMANN, of Berlin, P. VON BRUNS, of Tübingen, and J. VON MIKULICZ, of Breslau. Edited by WILLIAM T. BULL, M.D., Professor of Surgery in the College of Physicians and Surgeons (Columbia University), New York. Complete work now ready, in five imperial octavo volumes, containing 4,220 pages, 1,976 engravings and 102 full-page plates in colours and monochrome. Sold by subscription only. Per volume, cloth, \$6.00; leather, \$7.00; half morocco, \$8.50, net. Volume V. just ready. 789 pages, 354 engravings, 23 plates. Lea Brothers & Co., Publishers, Philadelphia and New York.

Messrs. Lea announce that this system of surgery is now complete with the appearance of the fifth volume. As each volume appeared, it received mention in these pages, and always with respect and praise. This system is the most authoritative which has appeared in recent years, and to refresh the memory we append a summary of the contents of each volume.

Volume I.—936 pages, with 361 engravings and 18 plates—covers the following subjects: injuries and diseases of the skull and its contents; malformations, injuries and diseases of the ear; of the face (including plastic operations and the neuralgias of the head); of the salivary glands (including anomalies); of the jaw; of the nose and its adjacent tissues; of the mouth and of the pharynx.

Volume II.—820 pages, with 321 engravings and 24 plates—malformations, injuries and diseases of the neck, larynx, trachea, mammary gland, vertebral column, the thyroid gland, the thorax and its contents, the spinal cord.

Volume III.—918 pages, 595 engravings and 21 plates—Malforma-

tions, injuries and diseases of the shoulders and upper arm, elbow, forearm, wrist, hand, hip, thigh, knee, leg, ankle, foot.

Volume IV.—757 pages, 345 engravings and 16 plates—Malformations, injuries and diseases of the œsophagus, stomach and intestines; injuries and diseases of the abdominal wall, the peritoneum, the liver and biliary passages, the spleen and pancreas; hernia; laparotomy.

Volume V.—789 pages, 354 engravings and 23 plates—Malformations, injuries and diseases of the pelvis, the anus and rectum, the urethra, the penis. Abnormalities, injuries and diseases of the kidneys and ureter, the bladder and prostate, the scrotum, testicles, vas deferens and seminal vesicle.

THE THEORY AND PRACTICE OF INFANT FEEDING, with Notes on Development. By HENRY DWIGHT CHAPLIN, A.M., M.D. 2nd Edition, revised. Wm. Wood & Co., New York, 1904.

Scarcely two years ago the first edition of this work was most favourably noticed in this journal. The fact that in such a brief interval it has been found necessary to issue a second edition is proof that the opinion then expressed has been shared by many others. Certain parts have been revised and others completely rewritten in this edition. One notes the highly suggestive remarks on the place of milk in the animal economy at the end of chapter viii., which, with the accompanying illustrations, add greatly to the value of the book. Again the question of the purpose in adding alkalies to milk is gone into fully, and the author recommends that they should be used with discretion and not as a matter of routine. The recent work on the etiology of summer Diarrhœas has been embodied in this edition, so that the work has been greatly improved, and cannot fail to enhance its already excellent reputation as one of the most authoritative works on infant feeding.

TEXT-BOOK OF NERVOUS DISEASES AND PSYCHIATRY. By Charles L. Dana, A.M., M.D., Professor of Nervous Diseases, Cornell University Medical College. Sixth Edition revised and enlarged. Illustrated by 244 engravings and three plates in colours. New York, William Wood & Company. 1904.

Professor Dana's text-book of nervous diseases has reached the sixth edition, and to it has been added a section in psychiatry. In its new form the book bears the date of July 6th, 1904. This work has always been well liked by students and practitioners—and upon good grounds. It can be understood by the average reader, which is not always the case in books upon the nervous system. The author does not undertake to do too much, and yet an acquaintance with the previous editions and

rather a careful examination of this one do not disclose any important omissions. There are, according to the writer, 176 special diseases of the nervous system, and of these 65 (or 66, as appears by the enumeration) are either common or important. The latter class is treated with sufficient fulness, and always with lucidity. Treatment is not neglected.

The section on Diseases of the Mind is not large, but it is interesting. The chapter upon General Psychology reads as if it might have been written by a human being. Many writers seem to keep a tame steam engine to perform that part of their task. Professor Dana brings the reader into contact with the minds of the insane rather than with their bodies. The "Story of the Man with the Polypathic Brain" is a case in point. The illustrations are interesting also. To read the book is a work of pleasure.

REPORT OF THE TUBERCULOSIS COMMISSION OF THE STATE OF MARYLAND, 1902-1904, DR. MARSHALL LANGTON PRICE, Medical Officer.

The Tuberculosis Commission of the State of Maryland is composed of Dr. Wm. S. Thayer, President; Geo. Stewart Brown, Dr. W. Frank Hines, Dr. Lilian Welsh, John M. Glenn, Secretary, and Dr. Price, medical officer. The report which the Commission issues is a valuable document, and deals with every aspect of the disease. It contains a full report of the Tuberculosis Exposition which was opened in Baltimore in January last, including the addresses which were delivered upon that occasion. The records of legislation and tables of statistics are very full. The work which is being done in Maryland should serve as a model and a stimulus to other communities.

ESSENTIALS OF MEDICAL CHEMISTRY. By LAWRENCE WOLFE, M.D. Sixth Edition, revised by A. FERREE WITMER, Ph.G. Saunder's Question Compend.

Medical News.

HOTEL DIEU.

During the month of September there were admitted 402 patients, 190 of whom were males. There were discharged 222, of which 102 were males. The deaths were fifteen.

A meeting of the Medical Association of Winnipeg was held on the 7th of October, at which the officers were elected. Dr. E. S. Popham was elected President; Dr. Gordon Bell, First Vice-President; Dr.

Montgomery, Second Vice-President; and Dr. J. R. Davidson, re-elected Secretary-Treasurer. The members of the council are Doctors England, McKenty, Vrooman and Beath.

Dr. Achille Chouinard died in Quebec on the 11th of October. Dr. Chouinard returned from France last spring, where he spent two years following a medical course in the hospitals. Soon after his return he was stricken with consumption, and died after three months' illness.

Dr. Albert E. Mallory, registrar of East Northumberland, died on the 4th of October in Colborne. Dr. Mallory was born at Cobourg February 1, 1849. He was educated at Albert College, Belleville, graduated in medicine at McGill University, and started practice at Warkworth, Ont. He was licensed by the Royal College of Surgeons, Edinburgh, and obtained a certificate of British registration in 1878.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

HENRY R. STORRS. "Lingual Goitre." *Annals of Surgery*, September, 1904.

The writer has collected thirty-two cases from the literature dealing with this very interesting and rare condition. His conclusions are that lingual goitre is a tumour at the base of the tongue arising from an accessory thyroid gland, which may be found in the course of the development of the thyroglossal duct. It has all the characteristics of ordinary goitre, occurs almost exclusively in women between the ages of fifteen and forty. It grows slowly, and may exist for years without causing any annoyance until some unknown cause stimulates its growth and produces symptoms. These are functional and not constitutional, and consist of trouble in swallowing, breathing and speaking, accompanied by frequent hæmorrhages. The tumour is round or ovoid, elastic and covered by a very vascular mucous membrane, and is almost never ulcerated. Dermoid cysts offer the only difficulty in differential diagnosis, but they are generally yellow, grow rapidly, pit on pressure, and have not the vascularity of goitre. Operation is the only radical cure. There are two ways of reaching the tumour, namely, through the mouth and through an incision in the suprahyoid region, the former being the better. The prognosis is good, there having

been no postoperative deaths, and in all cases the cure has been permanent.

ROYAL WHITMAN, M.D. "The Distinction between Fracture of the Neck of the Femur and Epiphyseal Disjunction in Early Life, with reference to its Influence upon Prognosis and Treatment." *Medical News*, September 24, 1904.

As a result of the writer's investigations into fractures of this region, it is now generally admitted that fracture of the neck of the femur is relatively common in early life. Exception is taken to the strong tendency among German writers to class these cases as epiphyseal separations rather than simple fractures, and several good points are brought forward against such a classification. The distinction between the symptoms and physical signs in the two classes of cases is given, and the nature of the deformity explained in the situation of the injury and its effect upon the function of the joint. As regards treatment, simple fracture should be treated by fixation at the limit of normal abduction, an attitude which implies restoration of the depressed neck to its normal position. Partial epiphyseal separation should be treated by direct operative reposition of the head. Excision, which is at present in such favour with German surgeons, should be an operation of necessity rather than choice. One should never be content with mechanical support, however efficient it may be in relieving the immediate symptoms, for normal function is dependent upon normal form, and one should always aim to remedy deformity whenever it is practicable.

FRANK H. MURDOCK, M.D. "The Indications for Surgical Intervention in Chronic Gastric Ulcer." *Medical Record*, October 1st, 1904.

Fenwick's classification is the one preferred, consisting of the gastralgic, the catarrhal or vomiting, the dyspeptic, the hæmorrhagic, and the cachectic. Hæmorrhage, perforation and stenosis of the pylorus are the three chief points considered. Hæmorrhage is stated as occurring in about 18 per cent. of all cases of chronic ulcer, and is of a more serious nature than in the acute, and is very apt to recur. Operation should not be delayed too long, as death often occurs without surgical interference. In cases of perforation immediate operation is, of course, demanded. As to the frequency with which stenosis of the pylorus follows chronic ulcer, Brinton computed that severe stenosis occurs in one out of two hundred cases. Fenwick's figures for partial

obstruction are given as from 16 to 20 per cent., while extreme stenosis occurs in only about 2 per cent. On the other hand, gastroenterostomy, the usual operative procedure, has a mortality of 15-30 per cent. In view of the comparative infrequency of hæmorrhage and perforation and pyloric stenosis and the high mortality from gastro-enterostomy and the low mortality from chronic ulcer, 4-8 per cent., it would seem to be the part of wisdom to avoid surgical procedure as long as possible. Exception is taken to Mansell Moullin's position that every chronic ulcer of the stomach that persists and causes serious pain and vomiting in spite of one thorough trial of the ordinary method of treatment should be exposed and treated surgically. The ordinary treatment usually means the Leube-Ziemssen rest cure, extending over a period of six weeks. This is well adapted for acute cases, but not for chronic, the latter generally requiring 12 to 18 months. On the other hand, exception must be taken to the plan apparently advocated, to keep from surgical interference until the stenosis reaches such a high degree as to prevent the passage even of liquids. Between the six weeks' limit and such extreme stenosis there is ample time for the medical man to be convinced the case is not progressing, and from Moynihan's results, as well as from others, it would seem that surgical intervention can do much better than give a mortality of 15 to 30 per cent., if the cases be operated upon when in a reasonably fair condition.

HENRY D. BEYEA, M.D. "Gastroptosis, with Special Reference to the Surgical Treatment: The Operation of Gastropexy." *American Medicine*, October 8, 1904.

The operation advocated by the writer was first performed by him in 1898. The principle of his operation is that by placing three rows of interrupted silk sutures from above downward, and from right to left through the gastrohepatic and gastrophrenic ligaments, a single, broad, transverse fold or plication is formed in the ligaments, shortening these ligamentary supports and elevating the stomach to normal position, without disturbing in the least the physiologic mobility of the organ. The results obtained have been excellent; 11 cases have now been under observation from eight months to six years after operation, and in every case the improvement in health has been most remarkable and the relief of symptoms complete.

CLARENCE A. McWILLIAMS, M.D.: "Dupuytren's Finger Contraction." *N.Y. Med. Jour.* and *Phila. Med. Journal*, October 8th, 1904.

Dr. McWilliams sums up the treatment of these cases as follows:—

At the beginning of the disease, we may often prevent its further development by systematic massage, active and passive motions, hot air baths, hot water baths, with the application of extension apparatus at night. Any constitutional diathesis should be treated. In case the disease advances, or in somewhat more developed cases, we may try the result of multiple subcutaneous incisions, followed by the palliative treatment just outlined. In working persons, who can scarcely find the necessary time and means properly to carry on the palliative treatment, we should advise at once a radical operation as the quickest and surest means of effecting a cure. It should be advised at once also in advanced cases. This consists in nothing short of excision of the whole thickened, contracted fascia, with its processes, preferably by one or more longitudinal incisions. The final results of the operative treatment of Dupuytren's contraction are usually very satisfactory.

HENRY H. MORTON, M.D. "Perineal Prostatectomy, with Report of Ten Cases. *Medical Record*, October 8th, 1904.

The author expresses the conviction that all varieties of prostatic hypertrophy are of inflammatory origin, probably in the majority of instances remotely of gonorrhoeal origin. The evidence in favour of this view is not conclusive; many facts point in other directions. The technique of the operation is described and the details of ten cases are submitted. Dr. Morton summarizes his conclusions, which are:—

1. The comparatively low death rate.
2. The rapidity, ease and facility with which the prostate can be enucleated.
3. The trifling amount of hæmorrhage and shock.
4. The excellent bladder drainage and ability to keep the patient's bed and dressings dry.
5. The rapid convalescence, the patient getting out of bed within ten days.
6. The complete restitution of the bladder functions in most cases.

R. A. BICKERSTETH, F.R.S.C., Eng., M.A., M.B. Cantab. "The Intravesical Separation of the Urines coming from the two Ureters as an aid to diagnosis in surgical disease of the kidneys." *Brit. Med. Jour.*, October 1st, 1904.

The method of intravesical separation of the urine coming from each ureter as employed by French surgeons is described. The method consists in placing temporarily in the bladder a vertical watertight septum, in such a manner as to divide it into two equal lateral halves. The

urine from each kidney as it enters its own half of the divided bladder is immediately drained away by catheter tubes, which form part of the apparatus, and it is collected in a suitable receptacle attached to the handle of the instrument, without having become mixed with the urine from the opposite side.

The instruments devised by Dr. Luys and Dr. Carhelm are figured and described. Dr. Luys's method is preferred. Eleven cases are cited. There is no question of the value to the surgeon in arriving at a diagnosis of information as to the character of the secretion of each organ. These "most exceedingly ingenious contrivances" have had a fairly wide application in this country, and the testimony is that they are not so "marvellously accurate" in their results as Mr. Bickersteth's enthusiastic account would lead us to believe.

CHARLES STEDMAN BULL, A.M., M.D. "Operations upon the Eyeball in the Presence of an Infected Conjunctival Sac." *Medical Record*, September 24th, 1904.

Summary.—I. A careful microscopical and bacteriological examination should be made of the contents of the conjunctival sac in every suspected case, carrying the examination as far as the cultivation of the bacteria in a proper medium, and the subsequent inoculation of the germs.

II. If toxic germs are found in great numbers, no matter what their varieties, no operation on the eyeball should be undertaken until the germs have disappeared, and the conjunctival sac has been rendered as sterile as we can hope to make it.

III. If there be suppurative disease of the lacrymal passages, whether of canaliculi, sac, or nasal duct, all operations upon the eyeball are positively contraindicated. The lacrymal sac must be excised, and any operation on the eyeball is undertaken. In the case of a catarrhal dacryocystitis, or of mucocele of the sac, both canaliculi should be incised, and the sac injected daily with an antiseptic astringent solution, and free irrigation through the nasal duct carried out until all secretion has ceased. Even in cases of great urgency, as, for example, acute inflammatory glaucoma, the writer would not feel himself justified in modifying the above statement.

IV. If the secretion of the conjunctival sac on examination is found to be infected, but the bacteria are few in number and of slight toxic variety, operations may be done on the eyeball when necessary, but these eyes should be opened and examined twice in the twenty-four hours, and the conjunctival sac gently irrigated with warm normal salt

solution, or warm sterilized boracic acid solution, and then the eye should be immediately rebandaged.

V. In operating upon the eyeball in the presence of an apparently normal, sterile conjunctival sac, the following steps should be taken;

1st. The forehead, eyebrows, temple, cheek, bridge of the nose, and external surface of the lid should be carefully cleansed with hot water and soap, and dried with aseptic cotton pads.

2d. The margins of the lids should be carefully but gently rubbed with sterilized moist cotton pads, and simultaneously irrigated with a warm sterilized physiological salt solution.

3d. Careful irrigation of the conjunctival sac with the same sterilized normal salt solution, and then closing the lids with a moist sterilized cotton pad. The lids should remain closed in this way until the speculum is introduced.

VI. In all cases the bandage should be removed and the eye examined under the strictest aseptic precautions, as strict as those employed at the time of operation.

VII. On the first sign of infection of the wound, the edges of the lids are to be thoroughly cleansed in the same manner as at the time of operation; the conjunctival sac is to be thoroughly irrigated with the sterilized normal salt solution; the wound is to be reopened and cauterized through its entire length with the galvano-cautery; and the anterior chamber is to be gently but carefully irrigated with a sublimate solution (1-5000); and then the conjunctival sac must be again irrigated, and the lids must be closed simply under a moist sterilized pad.

MEDICINE.

UNDER THE CHARGE OF JAMES STEWART, F. G. FINLEY H. A. LAFLEUR AND
W. F. HAMILTON.

LEWIS and LONGCOPE. "Experimental Arthritis and Endocarditis produced by a Streptococcus isolated from the blood of a case of Rheumatism Endocarditis and Chorea." *The Amer. Jour. of Med. Sciences*, October, 1904.

A review of the work done on the etiology of rheumatism forms the first portion of this interesting paper. Already the literature on this subject up to quite recent date has had a place in our retrospect. The clinical features of the patient under observation were those of a fairly mild case of multiple arthritis in child eight years of age. After a few weeks, chronic movements were observed, and increased rapidly in their severity. The diagnosis of endocarditis was made upon the find-

ing of an apical systolic murmur. Death ensued. No autopsy was allowed.

Blood cultures were made before death and inoculation experiments done upon three rabbits. The results are recorded in the following paragraph:—

“In a fatal case of rheumatism endocarditis and chorea a streptococcus was isolated from the blood before death. This organism did not differ materially from the common varieties of streptococcus progress in cultural properties, but produced very characteristic lesions in rabbits when injected intravenously. Such inoculations were always followed after a few days' incubation period by a multiple arthritis, which usually started in the ankles. In one rabbit extensive vegetations were found in the mitral valve, while typical infarctions were seen in the spleen and kidney. We believe that this streptococcus is the same as that described by Wassermann Meyer, Poynton and Paine, and Walker, and considered at least by the last three observers to be the specific cause of rheumatic fever.”

The Practitioner, October, 1904.

It is worth reproducing the contents of this valuable periodical. The articles are of value, and do not lend themselves to abstraction or summary:

The Treatment of Post Partum Hæmorrhage, by D. Berry Hart; On the Treatment of Post Partum Hæmorrhage, by John Phillips; The Treatment of Atonic Post-Partum Hæmorrhage, by Henry Jellett; Bilharziosis, by F. M. Sandwith; On the Rational Treatment of Gastric Disorders, by W. Langdon Brown; Some Cases of Varioloid, selected from 700 Cases of Small-Pox occurring recently in Leicester, by Allan Warner; The Signs and Symptoms of Measles in Relation to Diagnosis and Prognosis, by Harold Balme; A Review of Recent Investigations in Diseases of the Blood and Blood-forming Organs, by H. Batty Shaw; A Review of Recent Work on Abdominal Surgery, by B. G. A. Moynihan and J. F. Dobson; Foul Air and Standards of Air-Purity, by Louis Parkes.

Society Proceedings.

SOCIÉTÉ MÉDICALE DE MONTREAL.

The work of “La Société Médicale de Montréal” was resumed on Tuesday, October 5th, under the presidency of Doctor C. N. Valin.

Dr. DECARIE, secretary, read the annual report. Dr. Asselin, trea-

surer, announced to the meeting, that for the first time since its inception the balance-sheet of the Association showed a surplus.

The election of officers for the ensuing year was then proceeded with. Dr. Oscar Mercier was elected president; Dr. Boulet, vice-president; Dr. Ethier, treasurer; and Dr. Laramée, secretary.

Dr. VALIN, the retiring president, reviewed the proceedings of last year, and Dr. Mercier took the chair, after a vote of thanks to the retiring officers had been extended.

Dr. De MARTIGNY moved that Dr. Choquette, of Saint-Hilaire, be the first among the lecturers invited to lecture under the auspices of the Association.

The meetings of the Society will be held hereafter on the first and third Wednesday of each month, at 9 p.m.

Dr. VALIN and Dr. DUBE promised a paper for the next meeting. The average attendance for last year was 34.

Second Meeting, 18th October, 1904.

DR. OSCAR F. MERCIER, PRESIDENT, IN THE CHAIR.

A Committee of Administration was formed, consisting of all the former presidents and the officers of the present year, namely, Drs. O. F. Mercier, President; R. Boulet, Vice-President; A. Laramee, Secretary, and A. Ethier, Treasurer. Dr. Paul Courmont, of the University of Lyons was elected a corresponding member. Dr. Valin read a paper upon the importance of Hygiene in the Treatment of Disease. He considered the subject under three heads; first, the evolution of medicine; second, the importance of hygiene on therapeutics, and third, the practitioner in his relation to modern hygiene. The discussion which followed was shared in by Drs. Lachapelle, Hervieux, Dubé and Mercier.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

First Meeting, 7th October, 1904.

J. A. MACDONALD, M.D., PRESIDENT, IN THE CHAIR.

Dr. H. S. BIRKETT, the retiring President, delivered the annual address:

It becomes my duty once more to report upon the work of the past session, and in doing so I have drawn largely from the report of the Secretary. Eighteen regular meetings and one special meeting have been held. The average attendance was 54 members, a number far in excess of that for many years past; in fact, the highest average attendance in the history of this Society. At these meetings fourteen papers were read and twenty-one cases reported. Many living cases were brought before the notice of those present at these meetings, and the

members of this Society had the pleasure of attending three lantern demonstrations, including one on radium. The number of names at present registered in our roll-book is as follows:—

Resident members	162
Non-resident members	4
Temporary members	30
Honorary members	1
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Total	197

Ten new names have been added to the list of resident members and one to the list of non-resident members since November 1st, 1903. We deeply regret to record the loss of one of our members, Dr. Rollo Campbell, who died last May from a very severe attack of typhoid fever.

The programmes for the regular meetings have been in most cases arranged months before the stated meetings, consequently we have had the pleasure of hearing many carefully prepared papers and cases reported.

Amongst others contributing to the success of these meetings were Drs. Osler and Cushing, of Baltimore; Goldthwaite, of Boston; Primrose, of Toronto, and Professor Rutherford, of the Faculty of Applied Science, McGill University.

The presence of these noted persons and the value of their contributions have, I trust, done a great deal towards stimulating us to greater work in the future.

The collection of portraits of deceased Presidents has been increased since our last report by the addition of one of the late Dr. Godfrey, to whose relatives we have extended our hearty thanks and appreciation.

The Library Committee has a special recommendation to make in strongly urging our members to recognize the importance of taking more active steps towards establishing a library upon a useful and satisfactory basis, realizing that what may now appear to be only a small beginning may in the future be the means of doing untold good, and of leaving behind us something which the medical profession of this city might have reason to be proud of. The question of publishing transactions containing the results of the work of the Society, in extenso, is also a matter for serious consideration. It is almost a reproach to this Society that this work, so well begun years ago, should have been allowed to elapse, owing undoubtedly to the lack of interest shown by our members.

Another point I wish to touch upon is the inactivity of our members in dealing with papers brought before them for consideration. How often have we witnessed carefully prepared papers passed over in

absolute silence? Such a procedure is anything but encouraging to those who would otherwise present papers to this Society. I would therefore strongly urge our members not to be so indifferent to the subject presented to them, and of which due notice is sent, but to devote a little time to thinking over the subject to be considered at a future meeting, and come prepared to discuss it to some extent. This is especially applicable to our junior members, who, however, offer as excuses diffidence, and even fear, or want of experience in addressing an audience; but if one will advance oneself, one must be prepared to be differed from at times. Such differences have often proved of the most value in promoting interesting discussions.

To juniors, to whom I most earnestly appeal, I would say, do not for a moment think that nothing occurs in your practice which would not be of interest to your colleagues. It is by the smallest beginning that men have made themselves famous. You are the backbone of this Society, and in your hands lies its future. We are all here as students, and even the oldest may learn from the youngest. The duty which you have honoured your officers with is to say the least of it onerous, and it remains with you to make it as light and prosperous as possible. Therefore, be up and doing, and so further the reputation and good work which this Society is endeavouring to carry out.

Another matter which, I think, demands the attention of the members of the Society is the question of the Hospital for Infectious Diseases. We are entering upon a season during which infectious diseases are especially apt to be prevalent, and with absolutely no provision to cope properly with such cases to the best advantage to the general community. I think, therefore, it is very desirable that some form of protest against delays in promoting this hospital should receive support from such an important body of medical men which this Society represents, and would therefore suggest, if I may be allowed to do so, that those now in office take some steps towards furthering this object.

In conclusion, to those who have been associated with me in office during the past two sessions, and to the members in general, I desire to express my warmest thanks for the cordial support given to me upon all occasions, and to this support is largely due whatever success has attended our efforts. I would therefore ask each of you to accord to our newly elected President and his able assistants the same cordial support.

At the conclusion of the address the thanks of the Society were given to Dr. Birkett and to the retiring officers. A smoking concert was held, in which Drs. Harvey, Craig, Haldimand, Lauterman and Morphy took a part.