

*In the Haunts of William Harvey

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WHEN visitors from this side of the Atlantic come to England I generally find it is our historic institutions which interest them. Therefore I hope it may be of interest to you if I tell you something of three ancient institutions, the Medical School at Cambridge, St. Bartholomew's Hospital and the Royal College of Physicians. It will be generally agreed that in England the study of medicine by way of experiment began with Harvey's discovery of the circulation of the blood. Now it happens that he was closely associated with all three of these institutions, so that I shall try to interweave their histories with the life story of William Harvey. It gives me the more pleasure to do so because I have been for the greater part of my life connected with each of them.

As St. Bartholomew's Hospital is the oldest of the three being founded in 1123, I will speak of it first. I like to claim that it is the direct grandchild of the original Temple of Aesculapius at Epidaurus, for the following reasons.

In B.C. 292 there was a great plague in Rome, and in accordance with the advice of the Sibyllime books, ambassadors were sent to the Temple of Aesculapius at Epidaurus to bring his statute to Rome. As their vessel sailed up the Tiber, the story goes that a serpent which had lain concealed during the voyage, glided from it and landed among the reeds surrounding Tiber Island. This was hailed as an omen that Aesculapius himself had selected this spot. In consequence the form of a ship was given to the island and its poop can still be seen with the bust of Aesculapius with a serpent coiled round his sceptre. His temple was erected at this end of the island. When the modern embankment was made, pits were found filled with votive offerings;—arms, hands, feet and three life-size models of human trunks, cut open so as to expose the viscera, most of them in terra-cotta.

The medical history of Tiber Island goes even further back for it had previously been consecrated to a primitive Latin God—Faunus, who like Aesculapius conveyed his oracles by dreams.

In Christian times the Church of San Bartolomeo with its adjacent hospital replaced the temple. Ampère tells us when he visited this spot the Sacristan spoke of "the temple of Aesculapius, when Jove reigned", evidence of that lingering faith in paganism of which one is always faintly conscious of in Rome. Thus for more than two thousand years the island has been continuously dedicated to the spirit of healing.

When the White Ship went down and King Henry I never smiled again, his court became seriously minded. Rahere, a youth of lowly birth, had made himself popular at court by his witty talk, but when this change of thought occurred, he determined to go to Rome with a view to entering the priesthood. There he was stricken with a fever, doubtless malaria then so rife on the Campagna and was nursed in the Hospital of San Bartolomeo on Tiber Island.

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In his delirium he had a vision of the apostle who told him to build a church and a hospital in Smithfield. He obeyed and the Church of St. Bartholomew the Great still stands, though in a mutilated form and there the tomb of Rahere is still to be seen. His hospital has naturally been rebuilt several times, but for more than eight hundred years has continued its beneficent labours. Such is the link between the original Temple of Aesculapius at Epidaurus and St. Bartholomew's Hospital.

The Church of St. Bartholomew's the Great is the only Norman church left in London, if we except the Norman chapel in the Tower. It is one of the five churches which escaped the Great Fire of London in 1666, but it had already suffered serious damage at the Reformation. Even only a few years before I entered the neighbouring hospital, the Lady Chapel was a lace factory, the North Transept a blacksmith's forge, and the cloisters were stables. The nave has completely disappeared except for the West Door which now forms a gatehouse.

In 1381 Wat Tyler led his rebels to the gates of St. Bartholomew's and it was there that the Lord Mayor performed the surgical operation of beheading him, while the young king Richard II boldly proclaimed to the rebels, "I will be your leader". It is quite likely that the Lord Mayor executed Wat Tyler in revenge for his beheading the Archbishop of Canterbury, Simon of Sudbury, who as Bishop of London had looked after the hospital. His head is still preserved in a church at Sudbury, highly varnished last century by the instructions of Sir George Humphry, one of my old teachers at Cambridge.

It was in the reign of Richard II that John Mirfield wrote the first book on medicine connected with my hospital shortly before 1387—the Breviary of Bartholomew. This interesting evidence of the state of medical knowledge at that time remained in manuscript for five and a half centuries before it was printed with a translation through the pious labours of my colleague, Sir Percival Hartley.

Henry VIII is regarded as the second founder of our hospital, because having seized all our property and revenues he returned the greater part. The first physician to be appointed under the new foundation was a Dr. Lopez who came to a bad end in 1594. He was convicted, whether rightly or wrongly, of plotting to poison Queen Elizabeth, and was dragged to Tyburn on a hurdle where he was hanged, drawn and quartered.

William Harvey was appointed physician to St. Bartholomew's in 1609 and held office till 1644 when he withdrew to follow the fortunes of Charles I in the Civil War; the City of London being for the Parliament, this did not please the Governors and they appointed some one else. During his tenure of office he drew up rules and regulations for the conduct of the hospital, one of which led not unnaturally to a dispute with his surgical colleagues, since he expected them to submit their diagnosis to him and to allow him to dictate the treatment! It would be a bold physician who would attempt that today.

Contemporary prints show that in Harvey's time the hospital was built in the form of closed quadrangles. Two hundred years ago this was all swept away and a new hospital was designed by Gibbs, a distinguished pupil of Sir Christopher Wren's. So well was this done that although additions have of course been made, three-quarters of Gibbs' structure remains; the remaining quarter having been reconstructed was re-opened by Queen Mary only last year. When the fine staircase to the Great Hall was constructed soon after

1730, Hogarth who was born in the quaintly named Little Britain alongside the hospital, which is celebrated in Washington Irving's Sketch Book, offered to decorate it with two large wall paintings, a splendid gift which we still treasure. One depicts the parable of the Good Samaritan and the other the Pool of Bethesda. Amid the group of decrepit sufferers in the second picture is the contrasted figure of an apparently very well conditioned lady, almost nude. In the course of time these figures had become rather dimmed, and this woman was pointed out to me as a student as representing a *malade imaginaire*. Then the pictures were cleaned and a member of the staff came in just in time to prevent a conscientious British workman from scraping off some well defined patches of psoriasis from her knees which had disappeared from view under London grime. Hogarth evidently knew that psoriasis is said specially to afflict the otherwise healthy.

During the Great War the hospital narrowly escaped destruction on two occasions, for bombs fell in the adjacent Bartholomew Close, setting neighbouring buildings on fire. Many fragments of one bomb struck the stone posts of the Little Britain gate and have left their marks, while one passed through two wooden doors into the Matron's office.

The long history of the hospital and its site is borne in on one by two recent discoveries. In 1877 when the foundations were being dug for the library of the medical school, two stone sarcophagi were found dating from the time of the Roman occupation of Britain, and when the foundations for the new outpatient block were dug in 1907 I saw with my own eyes the disclosure of a plague pit and its skeletons. We have recently added to our historic associations by taking over a large part of the old Charterhouse for new buildings for our medical school and there side by side with modern laboratories you can see the 13th century red brick cloisters. Can you wonder that with such a history her sons are devoted to this ancient hospital, which perennially renews her youth?

Coming next to the University of Cambridge, it is to be regretted that its origin like that of Oxford is lost in mists and myths. We do know however that before the dawn of the 13th century both places were famous seats of learning and that Colleges were gradually established as halls of residence for students who otherwise were ill cared for. The most ancient college at Cambridge is Peterhouse, founded in 1284, but the oldest existing college building is the old court of the college of which I have the honour to be a Fellow, Corpus Christi. It was built between 1352 and 1354 and was the first to adopt the quadrangle in either University. It is therefore a unique example. One of the original windows was discovered a few years ago when the walls were stripped of the ivy that had hidden it for centuries. From the length of the bunks in which the scholars slept, we can see that the young men of to-day are distinctly taller than those of the 14th century. You can visit the rooms in which Christopher Marlowe kept his terms before bursting into fame as the great fore-runner of Shakespeare. In the library you can see the illuminated copy of the Gospels given by Pope Gregory the Great to St. Augustine when he came over to convert England in 592, the Anglo-Saxon Chronicle, a beautifully illuminated manuscript copy of Chaucer, and the contemporary record of the trial of Joan of Arc, to mention only a few of our unique treasures.

Although the earliest record of conferring a medical degree is dated 1460. it was not until the Renaissance that medicine was recognised as a subject of academic study at Cambridge, and then only half heartedly. In 1506

Erasmus paid his first brief visit but from 1510 to 1516 he resided there continuously in a lovely tower still standing in Queen's College. In his letters he complained bitterly of our ways and particularly of our wines. There is some excuse for him for Cambridge was visited by the plague in 1511 which must have made things uncomfortable. But he managed to introduce the study of Greek against considerable opposition in both Universities, strange to say in view of their later attitude when it seemed to some that the abolition of compulsory Greek was the beginning of the end. He also brought John Siberch over from the Netherlands, who started a printing press from which appeared the first books to be published in the University. The fourth of these was a discourse on Galen by Thomas Linacre. Now Linacre was the founder of English academic medicine. As we shall see later, in 1578 he persuaded Henry VIII to constitute the Royal College of Physicians in London, and six years later just a week before his death he founded medical lectureships both at Oxford and Cambridge. But while his London enterprise flourished, his University gifts were sadly mismanaged for centuries.

The next figure to attract our attention is that strange, enigmatic creature John Caius—profound scholar and generous benefactor but not a good mixer. I suspect he may have been the original of the Dr. Caius that Shakespeare made fun of in the *Merry Wives of Windsor*, although he is called a French physician in that play. Like many people of that time he latinised his name to Caius, but it is always pronounced in its original form of Keys. He entered Gonville Hall in 1529 and after graduating M.A. he went, like most prospective physicians of the time, to study medicine at Padua where he shared lodgings with the great Vesalius. On his return he practised medicine very successfully being physician in turn to Edward VI, Mary and Elizabeth; but he was removed from office finally in consequence of his adherence to the Roman Catholic faith. This seems a little hard since he was subsequently attacked as an atheist! I shall speak of him at the College of Physicians later; here I want to tell of his refounding Gonville Hall as Gonville and Caius College in the last year of Mary's reign. He was prevailed upon to become its Master but always refused any stipend. His additions to the College buildings were admirable. Particularly would I call attention to the three gates. The student entered through a small though beautiful gate, called the Gate of Humility. Between two Courts is a larger one, labelled on one side Virtue, on the other Wisdom. When he left the College to proceed to take his degree, he passed through the Gate of Honour, a specially lovely piece of Renaissance architecture. The Gate of Humility has alas vanished, but a very moving ceremony is enacted at the Gate of Honour when a Fellow of the College dies. The gate is shut and at the end of the service in the College Chapel the coffin is brought up to it, with a line of choristers on either side. The *Nunc Dimittis* is then sung, the Gate of Honour is opened wide and through it the Fellow is borne to his last resting place. This beautiful ceremony is common to all Colleges, but I think that it is most touching at the Great Gate of Trinity and this Gate of Honour of Caius.

Caius started demonstrations of Anatomy at Cambridge, and as William Harvey entered this College in 1593, it is probable that it was from these that his interest was originally aroused in medical science. The services of Caius to medical science and to his College were great and splendid; it is sad to tell how he was treated. We must remember that the religion of the state had within a quarter of a century been Roman Catholic, Protestant, Roman

Catholic again and finally Protestant. It might change again thought Caius, and so good careful soul he kept the Catholic vestments and other valuable religious objects belonging to the College hidden in his rooms. Unfortunately this came to the ears of the Bishop of London who caused a search to be made and the cherished articles destroyed. Charged with Roman Catholicism on the one hand and of atheism on the other, quarrels broke out in the College, so he resigned the Mastership and retired to the little house he had always rented within the precincts of St. Bartholomew's Hospital. It is perhaps typical of the man that although he had lived there for years before returning to Cambridge and had carried on private practice there, he was never known to enter the wards. He died in that house a saddened and a disillusioned man.

Another attempt had been made to establish the study of medicine at Cambridge in 1540 when Henry VIII established five Regius Professorships, one of them being for Physic. This Chair is still in the gift of the Crown and I had the good fortune to be its 20th occupant. But for many years the Regius Professor seems merely to have read and expounded the works of Hippocrates and Galen. Edward VI sent commissioners to establish a medical college but nothing came of it. As a result all Cambridge men of that time who wished to study medicine went to Italy, and usually to Padua, among them being Caius and Harvey. The latter went there in 1598, and studied anatomy under the famous Fabricius. Until the war Padua still looked much as it must have done when Harvey paced its colonnaded streets and secluded Botanic Garden. He must have gazed on Giotto's simple dignified frescoes in the Chapel of the Arena, and marvelled as we do still at the mingled beauty and learning so enthusiast cally expressed by the youthful Mantegna on the pictured walls of the Eremitani. The vast Salone still shelters Donatello's wooden horse and his sculptured high altar reposes under the five domes of San Antonio. In the buildings of the University, nicknamed "Il Bo" stands the anatomical theatre where Harvey watched the dissections of Fabricius; that theatre which served as the model for the old anatomical theatre at Cambridge that survived into my own student days.

Even on Harvey's return to England the experimental method was not employed at Cambridge and his real work was done at the College of Physicians in London. The first Regius Professor to study medicine experimentally was the famous Francis Glisson who was one of the earliest to accept Harvey's views on the circulation. His name is permanently inscribed for every medical student on the structure of the liver, and is immortalised by his description of rickets. Yet I fear that during his 41 years tenure of the Regius Professorship, he was largely an absentee. There is perhaps some excuse for this for in the troublous times of the Civil War academic pursuits must have languished. The first laboratory, the physiological, was established in 1705 and therein Stephen Hales the clerical discoverer of blood pressure made his initial experiments. The present flourishing state of the medical school is due to the efforts of three men, Sir George Paget, brother of the famous surgeon, who became Regius in 1872, Sir George Humphry, anatomist and surgeon, and Sir Michael Foster the famous physiologist. And so the failure at the time of the Renaissance to establish a living school of medicine in Cambridge was at length gloriously redeemed. I did not, of course, see that spring tide which followed the long winter, for when I entered in 1889 it was already early summer, but from my teachers I heard much of that swift flowering. Little did I think in those days that I should have the responsibility of follow-

ing such men as Sir George Paget, Sir Clifford Allbutt and Sir Humphry Rolleston. The rate of growth of the school can be gathered from the fact that in 1870 only two M.D. and 7 M.B. degrees were conferred, while in my last year of office there were just over 600 medical students doing pre-clinical work in Cambridge and an almost equal number of them engaged in clinical studies at the London Hospitals.

Henry VIII established similar Regius Chairs at Oxford, and it would ill become me, speaking in this Dominion, to omit to bear testimony to the extraordinary influence exerted by that great Canadian Sir William Osler during his brilliant tenure of the Regius Professorship of Medicine at Oxford. His magnetic personality attracted all that is best in English medicine to him and revived it to a remarkable degree.

I must next turn to the Royal College of Physicians which, as I have already said, Linaere, aided by Cardinal Wolsey, induced Henry VIII to establish in 1518. Its avowed intent was "the improvement and more orderly exercise of the art of physic and the repression of irregular, unlearned and incompetent practitioners of that faculty". It was to be administered by an annually elected President and four Censors. To this day every Fellow attending the election of President receives a new half crown from the Royal Mint. I may perhaps be pardoned for recording my personal pride at having been elected Senior Censor, and also my relief that the Censors have no longer as one of their duties the inspection of all the drug shops in the city. Linaere was annually elected President until his death and the meetings of the College took place at his house which he gave for that purpose. Caius became President in 1555, and he presented to the College a staff of silver, or caduceus supported by four Aesculapian serpents to remind the President as he said "by its material, silver, to govern with patience and courtesy, and by its symbols, serpents, with judgment and wisdom". This caduceus is still carried by the President on all official occasions and may be carried by him alone.

William Harvey was examined for the Licentiatehip of the College in 1604 and his diploma bears the highest terms of approbation. It is of interest to find that at the same examination Thomas Lodge, the poet and novelist was rejected, as he was on at least one subsequent occasion; not until 1609 was he approved. He is best remembered by his story of Rosader and Rosalynde and their forest wooing which inspired Shakespeare to write "As You Like It". How closely Shakespeare followed the story and how enormously he lifted it by his genius can be seen by any who compare the two.

Harvey was elected to our Fellowship in 1607, and in 1615 became Lumlleian Lecturer at the College. It was in this capacity that he experimented and made his immortal discovery of the circulation of the blood. So carefully did he control his observations that it was not until 1628 that he published them in a book entitled *De Motu Cordis*. His dissections and his silver tipped demonstrating rod are still in our possession. Throughout his life Harvey remained devoted to the interests of the College, though he declined the Presidential Chair. He also showed his independence in another way. It was the custom for the junior Fellows in turn to provide the annual banquet, or in default to pay a fine of 20 guineas. Harvey refused to provide the dinner and paid the fine. I like to think it was his protest against an imposition on men who might still be in the struggling stage, for he left a bequest to pay for our annual dinner. Since however this now only brings in £15 a year, you can understand that we have to put our hands into our own pockets. He also gave a bequest to provide a cold collation at each meeting of the Censors'

Board, but this also has shrunk, so that after each meeting of the Board I was duly presented with a packet of macaroons and ratafias which I solemnly munched to the immortal memory. This is not the only gift of Harvey's from which I have personally benefited for in 1656 he instituted the Harveian Oration for the commemoration of our benefactors and for the enunciation of certain exhortations which by long usage have now acquired the significance of a bidding prayer. These were—to seek out the secrets of nature by way of experiment and for the honour of the profession to continue in mutual love and affection. The Orator receives £5 from Harvey's estate, which sum was doubled by his friend Baldwin Hamey, and duly paid to me when I delivered the 217th Oration. But the money is the least part of the occasion when we gather together on St. Luke's Day, the Bedell carrying the fine mace of Charles II, the Orator in scarlet doctor's robes following; next the President bearing the Caduceus and wearing the black silk robes richly adorned with gold lace that date back to Queen Anne, the Censors and other College Officers bringing up the train. It is good for us to pause thus amid the rush of life for an hour to join hands with those who have gone before and with those who will come after us. Thus is the real continuity of the College assured.

In taking leave of the College Harvey put the crown on his munificence by giving to the College in perpetuity his patrimonial estate. In his will he further testified his affection for the College in these words, "Touching my books and household stuff, pictures and apparel, of which I have not already disposed I give to the College of Physicians all my books and papers, my best Persia long carpet, and my blue satin embroidered cushion, one pair of brass and irons, with fire shovel and tongues of brass for the ornament of the meeting room I have erected for the purpose."

That room and its contents perished, alas, with the rest of Linacre's building in the great fire of 1666. The second College was soon erected and the Censors' room beautifully panelled by Harvey's friend Baldwin Hamey. There the College remained until early last century, by which time the trend westward had become so strong that it was not longer felt to be appropriate to remain in the City. The present College (to which Hamey's panelling was transferred) was accordingly built in Trafalgar Square and you may be able to locate it by the same means as was a taxi-driver, who being hailed by a friend of mine, was directed to drive to the College of Physicians. He thought for a moment and then said, "Oh yes I know where it is; it's the dirty end of Canada House". For it must be admitted, we do not keep ourselves as smart as your High Commissioner keeps his abode. A fine building in some ways, it in its turn has become inadequate for our needs.

But I must draw these rather wandering remarks to a close, hoping that at any rate I have been able to paint a picture of the ancient haunts of Harvey in institutions which are our common heritage. Sharing that heritage I rejoice to feel here that the same impulses towards the public weal and the same loyalties to our beloved profession animate us all.

The progress of medicine has ever been from the temple to the medical school. Though the statue of Aesculapius was carried from Epidaurus to Tiber Island, it was something more important that Rahere brought from Tiber Island to England; it was the spirit of Aesculapius opening the path to the medical school. Man is always too ready to mistake the symbol for the reality; the stone on which the laws are graven, is apt to become more sacred than the laws themselves; but the statue of Aesculapius is unavailing if the spirit dies.

*Surgical Problems of the Extrahepatic Bile Passages

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LESIONS of the extrahepatic bile passages are the second most frequent cause for abdominal operations by the general surgeon, and still our knowledge of the physiology and pathologic physiology of this system is far from complete. Much remains to be done, but the information already available has added greatly to our knowledge of biliary function in health and disease.

When the liver bile is carried to the normal gall bladder certain changes in composition occur. The chloride and bicarbonate are removed. The base, bile salt, cholesterol and pigment are greatly concentrated. On the other hand, when the gall bladder becomes damaged the chloride and bicarbonate concentrations of the gall-bladder bile increase and the bile salt and calcium concentrations decrease. Thus, while the normal gall-bladder bile is on the acid side, the bile from the damaged gall-bladder tends to become more alkaline.

Observations which we have made demonstrate that in extensive damage of the gall-bladder wall fluid pours into its lumen instead of being absorbed from the bile. This phenomenon partly explains the failure of the diseased gall-bladder to be visualized after the administration of sodium tetraiodophenolphthalein since the dye coming from the liver is still further diluted, and visualization of the gall-bladder depends upon concentration of the dye. Moreover, while the normal gall-bladder wall permits little or none of the dye to pass, a considerable amount of the dye is absorbed from the bile in a damaged gall-bladder.

The degree of damage to the gall-bladder wall is not stationary. During acute inflammation and even at times during pregnancy, the gall-bladder may not be visualized after dye administration but at a subsequent period some recovery of the function may take place and the gall-bladder may then be visualized. It is thus possible to find gall stones in a gall-bladder which visualizes well after the administration of sodium tetraiodophenolphthalein, and whose walls are only slightly thickened at operation.

Through the kindness of Doctor Potter of Buffalo, we were able to secure specimens of gall-bladder bile from 65 patients who underwent Caesarean operations. The high frequency of occurrence of gall-bladder disease in women who are pregnant or in women who have borne children, has naturally led to the idea that there occurs in pregnancy a disturbance in metabolism which predisposes to the formation of gall stones. The almost invariable hypercholesterinemia of the pregnancy, and the absence in normal pregnancy of marked disturbances of the other blood constituents, suggests that the metabolism of cholesterol, of which the majority of gall stones are chiefly formed,

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may be derranged as a result of pregnancy. The hypercholesterinemia which accompanies pregnancy nearly invariably disappears before or very soon after delivery and as a rule at the time that calculous cholecystitis is diagnosed the blood cholesterol is usually normal. No information is available on the concentration of the bile or blood cholesterol at a time when stone formation was taking place. Our earlier studies had shown that both hepatic and gall-bladder bile from patients having gall stones show variations in their composition from the bile obtained from normal patients. It was of interest to know whether the bile specimens obtained from pregnant women were normal or whether they showed any of the characteristics of the bile from patients known to have gall-bladder disease.

The bile salt concentrations were all below those found in bile removed from a normally functioning gall-bladder. The figures for the gall-bladder bile cholesterol in the pregnant women were definitely higher than normal, in fact, they are at times as much as five times the normal value. Thus, pregnancy bile contains a decreased amount of bile salt which is so necessary to keep cholesterol from precipitating out in the bile, while at the same time the bile cholesterol is increased.

These changes represent the preliminary changes which may precede the formation of stones, and indicate that the frequent occurrence of gall stones in pregnant women is not a chance coincidence but is the result of some change from the normal either in the bile put out by the liver, or the bile after it has been acted upon by the gall-bladder.

From the viewpoint of the clinician, gall-bladder disease, exclusive of malignancy, can be divided into two groups—with stones and without stones. There is no certain method of determining in all instances before operation whether stones are or are not present. Over a period of several years we have had our patients studied roentgenographically and have studied the material obtained by duodenal drainage. Each method is open to certain errors but each in the hands of properly trained technicians is sufficiently accurate to permit a high percentage of dependable results. We have found that in gall-bladder bile obtained by duodenal drainage a more accurate means of determining the presence of gall stones preoperatively. When a "B" fraction of bile can be obtained, the method is 81 per cent accurate in the diagnosis of stones when carried out by a qualified technician, while by X-ray we have positively visualized but 48 per cent of stones. If one is to rate the accuracy of X-ray diagnosis on the end-results of operation in these patients, it must be admitted that we often go astray in the diagnosis of chronic cholecystitis in the absence of stones regardless of the method used. For in the non-calculous containing gall-bladder the end-results of cholecystectomy are not nearly so good as in the calculous group.

Each of these methods has its advantages and disadvantages. When the patient is studied by X-ray one must be sure that the patient has not vomited, or had a bowel movement for at least 6 hours after the administration of the dye. When the films are made the first film should include the entire abdomen so as to include a gall-bladder which may be displaced. At that time the dye should be demonstrable in the colon as a flaky material. Failure to check on these points may lead to an error in diagnosis.

When the method of duodenal drainage is used a "B" fraction is essential. If this is not obtained a positive diagnosis is not possible. Failure to obtain

a "B" fraction does not indicate cystic duct obstruction in every case as is commonly believed.

Furthermore, the value of an excellent clinical history should not be underestimated for occasionally too great emphasis is placed on the laboratory findings. They are by no means infallible. Not only is it important to establish as carefully as possible before operation whether gall-bladder disease exists, but it is of equal importance to determine the presence of existing collateral disease.

It is well known by surgeons that one of the major causes of death after operations on the biliary tract is myocardial failure. Riesman and Babcock independently suggested that the streptococcus, which is most frequently the infecting organism in biliary tract infection, also caused myocardial degeneration. More recently Schwartz and Herman have suggested that the myocardial change was the result of a fatty infiltration of the myocardium and that this was merely a part of the general increase in the adiposity of many of the patients who have gall-bladder disease.

For some time I have had the opinion that many of the patients who present evidences of serious cardiac disease at the time of operation probably had some initial cardiac lesion prior to the biliary tract disease. Though the gall-bladder lesion accentuated and aggravated the existing disease, it may not in many instances have been the sole etiologic factor. In the last 536 cases we have operated on there were 56 patients with evident cardiac disease, 18 of whom had evidences of severe myocardial disease by electrographic findings, with signs of decompensation.

All patients suspected of having coincidental cardiovascular disease are studied jointly by the surgeon and the internist. Electrocardiographic and orthodiagraphic studies are made as well as a careful physical examination of the heart. The operation is done when the surgeon and internist agree that the preparation has been adequate.

These patients do not, if properly protected before, during and after operation, present the serious risks which we are wont to expect since only two of the 56 patients with evident cardiac disease succumbed following operation, and one of these was a patient with common duct obstruction. The observations of Fitz-Hugh and Wolferth in this connection are indeed interesting in that following operation there is very often a rapid and marked improvement in the clinical as well as the electrocardiographic picture.

I cannot pass the cardiac aspects of biliary tract disease without saying a word about the patients with myocarditis and angina pectoris whose biliary symptoms may be so slight as to be overlooked. Many of these patients will be relieved of their most distressing symptoms after competent biliary tract surgery. Surely injections of, and operations on, the sympathetic nervous system should be delayed until after the necessary biliary tract surgery has been accomplished. The surprising thing is that at that time further surgery will often not be required.

In nearly every instance in our series there has been improvement in the patient's cardiac symptoms and while the end-results in this respect may not be as good as those obtained after thyroidectomy in the thyrocardiac they are sufficiently good to warrant operation. The gravest myocardial damage need not be a contraindication to operation. The operation has at times consisted only of a cholecystostomy under local anesthesia. In fact, the remarkable and early improvement which occurred in several of our

patients has made us wonder whether factors other than infection and mere obesity such as reflex phenomena may not play a part in accentuating an existing cardiac abnormality.

Diabetes mellitus was encountered in 29 of the last 536 patients in whom gall stone disease was present. This association of diabetes with gall stone disease is more than casual, and we must in certain instances agree that there is at least an etiologic relationship between the two diseases.

Joslin has stressed the association of obesity and diabetes. Here again we find a close relationship to cholecystic disease for so many of the patients with biliary tract disease are overweight. The combination of cholecystitis and hepatitis results in a liver whose ability to store glycogen is below normal. The high glucose tolerance curves seen in the patients with severe hepatic disease are often not unlike those of the diabetic. The association of hepatitis, cholecystitis and diabetes so disturbs the glucose metabolism that problems of the most perplexing character confront the clinician. We have repeatedly observed that the diabetic with severe hepatic disease is difficult to standardize. The patient is frequently thrown into hypoglycemic shock by doses of insulin which would have little effect in the presence of a more normally functioning liver. Soskin and his associates have recently reported experimental evidence which may explain these clinical findings.

The higher incidence of diabetes in our group of patients that is found in the normal population would suggest that the patient with long-standing cholecystic disease is more prone to diabetes than is the normal individual. Certainly in those patients who only to a slight degree tend to become diabetics, the latent diabetics, the cholecystic disease may tend to accentuate the condition.

We have become accustomed to thinking in terms of liver damage in biliary tract disease when the patient is jaundiced. That the liver glycogen stores may be just as seriously reduced when there exists a widespread hepatitis is not so well understood, but is nevertheless true, for hepatic parenchyma damaged by infection, cirrhosis, and fatty infiltration, such as frequently is observed in long-standing cholecystic disease is not conducive to permit of normal glycogen storage.

We have run the gamut of liver function tests, galactose and glucose tolerance tests, phenoltetrachlorophthalein, hippuric acid, and many others and have come to the conclusion that hardly any of these are of constant and sufficient value to place too much reliance on them. The compensatory activity of the liver is so great that extensive liver injury exists before these tests demonstrate hepatic injury. At such a time the tests are too frequently unnecessary. The van den Bergh determination is of real help in telling the degree of bile pigment retention in the blood stream. It is, however, not a test of liver function. The hippuric acid conjugation method of Quick is at present the best method available for determining hepatic function, but it too frequently fails to indicate early or moderate liver injury. In an organ whose functions are so diversified, it is hardly possible that any one test will ever give us an adequate conception of complete function.

It may be inferred from my remarks that I consider gall-bladder disease entirely a surgical problem. I do not believe this to be true. To operate on every patient with cholecystitis is a mistake. From 10 to 12 per cent of our population past 40 years of age have gall stones. Only those patients with symptoms of indigestion, or colic, or both, and those with cardiac disease or

diabetes mellitus need be considered for operation. Symptomless stones might well be retained and the patient not be exposed to the dangers, even though these be few, of surgical therapy.

While I can speak with some positiveness in regard to the stone containing gall-bladder, it is not possible to do so in regard to the non-calculus gall-bladder. Nothing has done more harm to the surgery of the biliary tract than the wholesale removal of the blue thin-walled gall-bladder which grossly and microscopically shows little evidence of disease. Even the gall-bladder of cholesterosis is but one evidence of a profound disturbance in the lipid metabolism. It is not an inflammatory lesion and its removal too frequently results in a poor end-result and a dissatisfied patient.

Even though the symptoms point strongly to cholecystic disease the gall-bladder should not be removed if careful exploration fails to reveal good evidence of disease. The frequency with which colitis may simulate cholecystic disease is ample evidence that all right upper quadrant pain is not the result of biliary tract disease. Nothing has retarded early operation in patients requiring biliary tract surgery so much as the fact that from 40 to 60 per cent of the non-calculus cases subjected to cholecystectomy fail to obtain the relief which they expected. Surely if disease of the gall-bladder were the cause of the symptoms the end-results in this group should be of the best for they would be in an earlier stage of biliary tract disease. Surgery of the gall-bladder is not the cure for all types of the strawberry gall-bladder, for colitis, and for dyskinesia of the biliary passages, a lesion which is receiving too little attention in this country. The non-calculous gall-bladder and the chronic appendix belong to much the same category and the surgical treatment of neither of these conditions has added to the reputation of the surgeon.

There is a large group of patients who have had one or two attacks of cholecystitis and in whom the evidence is strongly against the presence of stones, who also should be treated by non-surgical methods to ascertain whether they can be kept comfortable. Should a medical regime fail to give relief from symptoms, surgery can then be done.

In acute gall-bladder inflammation, associated with cystic duct obstruction, early operation is, I believe, desirable for it permits of cholecystectomy, while the edema, suppuration, gangrene and perforation which so frequently follow acute cystic duct obstruction, increases the hazards of either cholecystomy or cholecystectomy. I find myself in sympathy with those who believe that, in general, delay increases the risk to the patient. On the other hand, when the patient is seen three or four days following the onset of the attack, palliation is often desirable if the evidence points to a subsidence of the acute process.

I do not believe, however, that cholecystectomy should be done in every instance regardless of the stage of the disease, for it is often wiser to do a cholecystostomy and drain a localized subhepatic abscess than to open widely an area of limited peritoneal infection. It is rare for the gall-bladder to perforate into the free peritoneal cavity and from this point of view the acutely inflamed gall-bladder need not be compared with the acutely inflamed appendix.

It is of the greatest importance that the anatomical relations at the junction of the cystic and common ducts be carefully visualized. The damage to an abnormally placed right hepatic duct may prove difficult to repair even though the injury is observed during the operation. Ligation of an anomalous-

ly located hepatic artery will result in death and the catastrophe has infrequently been ascribed to cardiac failure.

There still seems to be a difference of opinion as to whether the common duct should be opened in the absence of jaundice. We find that in the presence of common duct dilatation even in the absence of a previous history of jaundice this is often a wise procedure. Increasing experience with common duct exploration in nonjaundiced patients has convinced us that Lahey is correct. The dilated common duct, especially when there is an accompanying dilatation of the cystic duct frequently contains stones. The time to remove these is at the original operation.

The question of whether to drain after cholecystectomy is still a moot point. It is our practice to drain with a small soft rubber tube. One of the most distinguished advocates of non-drainage in my country has said that failure to drain will be regretted in not more than two patients in a hundred. If this be true the mortality of simple cholecystectomy for calculous or non-calculous disease is doubled by failing to introduce a safety valve in the event of bile leakage and threatened bile peritonitis.

While the problems associated with a simple gall stone disease are numerous, they are now more clearly understood, and there is a more or less generally uniform understanding concerning them. When, however, a stone passes into the common duct, and jaundice occurs, the problems confronting the patient and the clinician are greatly multiplied, their complexity is increased, and our understanding of the pathologic physiology which follows biliary obstruction is not so clear.

The problem involved in the successful treatment of patients with obstruction of the common bile duct are often so numerous and so difficult of solution that one is surprised that the mortality is not higher than it now is. Whether the obstruction is due to a stone, tumor or cicatricial stenosis, there occurs with the advent of ductal occlusion an increase in the presence of intra- and extrahepatic bile ducts. As a result of this the liver cells attempt to carry on their manifold functions against an increasing pressure obstacle. When, after complete ductal obstruction, the pressure in the hepatic ducts reaches 330 millimeters of the bile itself, hepatic secretory function, as far as any normal function is concerned, ceases. Even at this time many of the functions of the liver continue with little evidence of interference. Glycogenolysis and glycogen deposition are affected but not completely suppressed. Urea continues to be formed. Fibrinogen formation is not affected. Thus, the tangible functions are continued in the face of complete secretory suppression.

There occurs at this time a failure of bile pigment to pass into the common duct and as a corollary to this, a retention of bile pigment in the blood with resultant evidences of jaundice. The degree of bile pigment retention will depend upon several factors. If the obstruction is associated with a normally functioning gall-bladder, as occurs in carcinoma of the head of the pancreas or of the papilla of Vater, deep icterus may be delayed for a time.

When the hepatic secretory suppression occurs, the mucus secretion of the bile ducts dilutes the trapped bile and as the pigment is observed by the mucus cells hydrohepatosis results, at which time so-called "white bile" fills the hepatic ductal system. It is during the state of partial liver insufficiency that so many of these patients come for surgical aid.

In 1929 I reported evidence showing that the glycogen stores of the liver may be severely affected in complete common duct obstruction. Since the part the liver plays in carbohydrate metabolism is one of its most important functions any interference with this metabolism is of considerable significance. We have, however, concluded that too much emphasis has been placed on the carbohydrate aspects of liver function in biliary tract disease, and too little on the metabolism of fat in the liver. It is true that normally a high liver glycogen is associated with a low liver fat, but it is possible to have a high glycogen content of the liver and simultaneous high liver fat. Moreover, it has not been demonstrated that with the methods now used during the period of preoperative treatment the liver fat can be considerably affected. Of the greatest importance is the fact that in the presence of liver damage in association with hepatitis and common duct obstruction large amounts of fat may remain in the liver after a vigorous type of glucose therapy. This we have demonstrated in patients we have prepared for operation.

It is, we believe, the amount of fat in the liver, regardless of the glycogen level, which conditions the precipitation of liver injury after the use of volatile anesthetics. Thus, a high liver glycogen will not protect against liver injury following the use of chloroform ether or Vinethene, if the amount of fat in the liver exceeds 14 per cent which is only 1.5 to 2 times the normal amount. Furthermore, such a liver is more easily damaged by the anoxemia associated with nitrous oxide and oxygen anesthesia or even spinal anesthesia when accompanied by marked hypotension.

We have repeatedly observed that the depletion of liver glycogen permits additional fat to come to the liver. If, as a result of cell injury, either from obstruction, infection or any other factor causing a depletion of the glycogen reserve, the liver fat stores are increased, liver necrosis may occur during anesthesia. Liver anoxemia is known to exist in common duct obstruction. Thus, a number of factors are associated to produce a vicious circle leading to further liver injury. And the additional injury precipitated by operation and anesthesia may be the important factor in the end-result.

It is because of the manifold problems which confront us in these patients that I wish to discuss with you a rational therapy for preparing the bad risk biliary group with or without obstructive jaundice for operation, as well as certain factors in the operative and post-operative therapy.

Waltman Walters has called attention to the importance of operating on severely jaundiced patients at a time when the level of bile pigment retention in the blood is more or less stationary. The significance of this observation is only too frequently overlooked. There is no doubt in my mind but that the patient who is operated on when the van den Bergh shows a constant level of the serum bilirubin, whether this be high or low, is better able to withstand the additional trauma of operation than is the patient who is operated on in the face of a rapidly rising bile pigment concentration in the blood.

This is one of the reasons why I do not believe it is necessary to rush the jaundiced patient to operation. A few days or even a few weeks careful preparation in certain cases is of more importance than the fact that delay in operation prolongs the period of jaundice. If the serum bilirubin is rising, we wait until it has reached a stationary level. If it is falling, we wait until the maximum improvement has taken place.

Since carbohydrates are the major source of liver glycogen, an attempt should be made to increase the carbohydrate intake prior to operation. This

may in part be accomplished by frequent high carbohydrate feedings by mouth, reinforced by the intravenous administration of glucose. The anorexia which so many of these patients suffer from, can be corrected by the use of large amounts, 750 International units of Vitamin B daily plus the use of lyophilized human or pig's bile. It must be remembered, however, that even though the glycogen store is temporarily replenished, it is again rapidly depleted by the very factors which initiated the process in the beginning—ductal obstruction. It is, therefore, incorrect to assume too much from the simple preoperative administration of glucose unless the therapy is pushed by every available means and over a sufficiently long period of time.

The glucose which is given preoperatively should be given very slowly since the sugar tolerance is greatly reduced. As it is usually administered by an intern, from 50 to 100 grams of glucose may be introduced in from 10 to 20 minutes and fully a half or more of the glucose merely flows out in urine. It has been our experience that spilling over into the urine will not occur if not more than 20 grams per hour are injected intravenously to the average sized adult.

Since our attention has been focussed more directly on the fat content of the liver in the preoperative period, we have changed our preoperative therapy. Our investigations have shown us that it is only possible greatly to increase the glycogen stores during this period by the most intensive carbohydrate feeding. Nevertheless it is essential to rid the liver of the accumulated fat which may be present. The addition of protein to the high carbohydrate diet in the amount of 14 per cent of the total calories is, we believe, useful in accomplishing this. The protein-carbohydrate diet will, we believe, be the accepted diet where a low fat liver is desired.

One of the most distressing complications of operation on the jaundiced patient is haemorrhage. There has existed no satisfactory explanation why given two patients with an equal degree of jaundice from common duct obstruction, one will bleed after operation while the other goes on to an uncomplicated recovery, until Quick began his studies on the prothrombin time of these patients. We have at our disposal at this time in the study of the prothrombin time a satisfactory method of prognosticating which patient will and which will not bleed. The venous pressure bleeding time recently suggested by Ivy for this purpose and the sedimentation rate of Linton have not proven satisfactory in our hands.

The prothrombin time is studied in every jaundiced patient. Bile feedings are immediately begun either in the form of lyophilized bile or by the administration of sodium desoxycholate. In addition we are using a potent source of Vitamin K as suggested by Greaves and Schmidt. Since this method of preparation was begun, we have not had a single instance of post-operative haemorrhage.

It is, of course, possible that the liver injury may be so severe that diet, and bile, and Vitamin K may occasionally prove ineffectual, but the rapidity with which improvement of the liver may take place under suitable conditions leads me to believe that such will be rare.

Regardless of the method of preparation up to the time we began the use of bile and Vitamin K in the post-operative period haemorrhage incidence in our patients remained approximately the same. With this method of therapy surgeons need no longer lull themselves into a sense of false security by pouring calcium into the veins of their patients. The occasional use of small

transfusions in the preoperative period undoubtedly is of advantage and in the period prior to the use of bile and Vitamin K did more to reduce haemorrhage mortality than anything else.

One could hardly discuss treatment without referring briefly to certain aspects of the operation, for while more adequate pre- and post-operative care has contributed to a reduction in the morbidity of biliary tract operations, certain factors concerned with the operation itself have in our hands at least contributed in large measure to the safety of the bad risk patient.

We believe that the most satisfactory anesthetic in the biliary tract cases is spinal anesthesia. If the patients are given ephedrine prior to the administration of the anesthetic, as suggested by Ferguson and North, and if the anesthetic does not exceed 150 milligrams of novocain, the drop in the blood pressure is never alarming and the facility with which the operation can be done adds greatly to the safety of surgical intervention. As far as I know spinal anesthesia alone, with the exception of local anesthesia, will permit of extensive operations on the biliary tract without in any way affecting the liver tissue.

Contrary to general opinion nitrous oxide and oxygen anesthesia is not safe in the jaundiced patient. The increased anoxemia which this anesthetic induces in the liver cells may prove of serious consequence in that further liver degeneration and necrosis may occur. Even cyclopropane, which permits of the use of a high concentration of oxygen, has not been proved to be a very safe anesthetic in such instances.

There are a number of serious problems which may arise in post-operative periods which may be prevented by careful attention to the post-operative therapy. Patients with long standing or complete common duct obstruction should have a slow decompression of the biliary passages after operation. This can be accomplished in a manner similar to decompression of the urinary bladder, except that the obstacle must be provided after operation since the very nature of the operation tends to result in sudden biliary decompression. If the method of slow decompression is instituted the sudden hepatic hyperemia which follows the restoration of a free, portal venous blood flow can be controlled.

The use of a slow continuous intravenous drip of glucose and saline is of the greatest value in the post-operative period. It is after the release of the obstruction that the liver cells can resume their normal function and no single substance is so helpful in the post-operative period in aiding the hepatic cells to recover as is glucose.

In the badly jaundiced patients or in those whose jaundice has been of long standing we believe that the judicious use of small transfusions, 250 to 500 cc., in the post-operative period reduces the mortality, and results in a smoother convalescence. The Vitamin K feeding is continued in the post-operative period. It will not be long before a purer preparation will be available, which can be given parenterally to individuals with a non-retentive stomach.

In the post-operative care of the jaundiced patient we have found that the early restoration to the gastro-intestinal tract of the bile which is obtained by external drainage is of the greatest value. With the use of our decompression method bile feeding by Jutte tube is not required providing the obstruction has been removed. The extrahepatic functions of the bile play a most important part in the body economy and a more physiological intestinal

function will follow the adoption of this method in patients whose total or major bile excretion is flowing to the exterior. Since we began this method we have not observed a single instance of "pancreatic insufficiency".

I cannot leave certain of the post-operative problems of the biliary tract patient without saying a word about "liver shock". Many theories have been elaborated to explain the condition of profound vasomotor depression which occurs in the occasional patients after biliary tract surgery and which in spite of treatment frequently results in the death of the patient. The major types of shock are due to ligation or thrombosis of the main hepatic artery. If this catastrophe occurs, there will take place hypoglycemia, a falling blood pressure, a rising pulse rate and hyperpyrexia. While glucose may give temporary relief, it cannot save the patient.

Although the character and thoroughness of the operation play an important part in the end-result of any biliary tract operation there remains the small group of patients in whom operation was rightly indicated, who continue to complain of dyspeptic symptoms. If we exclude those patients in whom, as a result of some post-operative sequelae certain symptoms continue, there still remains a group in which, after a technically perfect operation, which was fully indicated, the expected relief failed to follow. Deaver and others have thought that in many of these patients a chronic pancreatitis accounted for many of the residual symptoms.

The failure to relieve fully certain of these patients can, however, be explained on the change in function of the gall-bladder and the liver in long standing biliary tract disease. The bile salts which play such an important role in the activation of the lipases, and in the digestion and transport of fat, and the absorption of a variety of important vitamins, are definitely reduced in concentration in hepatitis, so that the bile entering the intestine is inadequate to fulfill the role which it normally plays in the digestive and metabolic processes. Any condition which interferes with the normal enterohepatic circulation of certain of the bile constituents, or which prevents their formation in normal amounts may result in an interference with the extrahepatic functions of the bile and dyspeptic symptoms will persist. Thus, if after long standing cholecystic disease there results a permanently damaged liver, it is highly possible that even cholecystectomy and common duct operations will not bring the full measure of expected relief from symptoms. These patients will, however, prove to be the exceptions for with a clearer understanding of the responsibilities of internist and surgeon the patient will come to operation at a time when surgery can offer of its best. With careful preparation for operation after a critical survey of the patient's condition; with a carefully planned operation, which is skillfully executed and with attention to the minutia of post-operative care, complicating cardiac disease, hepatitis, diabetes, or even jaundice, are no longer the bug bears which they once were and the surgeon can approach these problems with confidence that the final outcome will in nearly every instance be good.

Some Public Health Needs in Nova Scotia

PRESIDENTIAL ADDRESS*

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WHAT tremendous changes have taken place in the realm of public health during the past fifty years! I can recall that period when my father practised in this capital city of our Province. When, as small children, my brother and I contracted diphtheria, the placard was on the door of our Hollis Street home, and every few doors had the same coloured placard. Many of the cases were seriously ill and there were many deaths, some of them among my childhood chums—friends who would never again try to steal a ride on the old street car on our way to Morris Street school. Contrast that picture with what we have today. Diphtheria has been almost eliminated as a result of the vigorous public health campaign and the general use of toxoid. However, although some of us have been using toxoid in our public schools, and in younger children, since 1927, there are many places in our Province where it has not been used. It was only last year that a nurse said to me: "Why should our school children not have this protection?" I replied, "Urge it and you will have it." She did so and was successful. Should we not, as medical health officers, see that this work is done, not only in our incorporated towns but in the rural districts as well?

If we, as medical health officers, did our part in this work of protection against diphtheria, our statistics in regard to this disease in Nova Scotia would be decidedly better. And here I want to say to every medical health officer, and I speak from personal experience: the Department of Public Health will cooperate with you in every way to protect your town and district against this disease, but you must do your part.

During the past century there has been a substantial increase in general life expectancy as a result of modern advances in hygiene and sanitation. Most progress has been recorded in the early years of life. Little improvement has occurred in the life expectancy of the older age-groups. Among numerous factors that may influence the life and health of the individual are heredity, diet, habits of work and thoughts, pleasures, climate, social position, profession, exposure to communicable diseases such as pneumonia, tuberculosis, syphilis, etc. The general aging of the population is partly responsible for the rise in the death rate from heart disease, since many who might have been victims of other diseases under former conditions of sanitation now succumb at older ages to heart disease. Elie Metchnikoff, an eminent student of longevity, said: "Human life does not last as long as it ought to in ideal conditions. We may predict that when science occupies the preponderating place in human society that it ought to have, and that when knowledge in hygiene is more advanced,

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human life will become much longer and the part of old people will become much more important than it is to-day."

Public health has in recent years made great progress. It is important to remember that many of the discoveries on which these achievements in public health have been based were contributed by physicians. The anti-tuberculosis movement was commenced by physicians. Much of the public health legislation has been proposed by the profession. Public health is a part of medicine. It is customary to speak of the practice of medicine as curative and preventive. One is, however, complementary to the other. I am sure we all agree that the physician of the future must increasingly practise preventive medicine. The physician must be the health adviser to the family. In the conduct of public health work the medical officer of health must enjoy the co-operation of every physician. To-day the public program requires the services of the nurse, the public health engineer, the laboratory worker, and the sanitary inspector. Successful performance of their duties rests on a proper understanding of the underlying medical principles. Essential services for public health must be maintained at all times, and in times of economic stress an adequate public health program is of special importance. If an epidemic of typhoid fever, diphtheria, or smallpox should occur at such a time, the added financial loss might be disastrous. No community can risk the danger of an impure water supply or unsafe milk on the plea of economic stringency. Essential in the maintenance of public health activities is public support, which in turn rests upon the continuous education of the public in the whole field of health. The medical profession hopes for the day when the well-trained physician will enjoy fully the whole-hearted and intelligent co-operation of the layman. Given such collaboration and the present achievements of medical science, continuous advances in the control of communicable diseases and in the lengthening of life could be achieved.

What can we do as medical health officers to advance public health measures in Nova Scotia? We should aim to have, firstly, closer co-operation between the Provincial health authorities and the medical health officers throughout the Province; and, secondly, closer co-operation between the medical health officer and the board of health and the various municipal organizations that are interested in advancing public health measures.

In regard to the first objective, if a fully qualified representative from the Department of Public Health could personally visit every medical health officer on different occasions throughout the year and discuss with him some of his local problems, much practical help might be gained and the public in general would feel that we were doing our best to advance certain definite public health measures in our own communities.

Further, serious problems are constantly arising throughout our rural districts, which are under the jurisdiction of the county medical health officer. This official may live twenty or thirty miles from conditions that should have his immediate and continued attention. Such attention is in many cases almost impossible, no matter how efficient or conscientious he may be. The reasons are obvious. These facts are not given in a spirit of criticism, because I know how difficult some situations are, but to bring to the attention of all medical health officers that we must do everything we can to help surmount these obstacles, until the day comes when we can have full-time health services.

I believe that all medical health officers should have on hand for emergency use such sera as are required in poliomyelitis, epidemic meningitis, and diphthe-

ria etc., so that it would not be necessary to lose precious hours in waiting for a supply from headquarters. The Department of the Public Health of this Province has made available sera and vaccines to the profession. The Department has made splendid progress and has given, and continues to give, valuable assistance in the whole field of public health.

In regard to closer co-operation between medical health officers, boards of health, and the citizens of the community, this in my opinion is essential if the whole-hearted support of responsible citizens, both men and women, is to be obtained. If you try to force through any important health measure without first educating your community and obtaining their interest and support, you will have to fight ignorance and opposition. As an outstanding example of the value of such co-operation, I should like to mention the experience of Wolfville. This town is the only town in the Maritimes requiring the pasteurization of all milk and cream. The by-law, which was passed in May, 1936, could never have been made law without a careful educational campaign which included the board of health, many town organizations, the farmer-producer, the prejudiced citizen, etc. We encountered a great deal of opposition but we persevered and finally succeeded. An account of the effort was published in the January 1937 issue of the *NOVA SCOTIA MEDICAL BULLETIN*. The Dept. of the Public Health of the Province has done much to ensure good and pure water supplies and is to be congratulated on the establishment of a Bureau of Sanitary Engineering, a branch of the service which, if carried far enough, can be of inestimable value to the medical health officers of the Province. Why should not all towns also have a safe milk supply? I should like to make a plea to all medical health officers for the pasteurization of all market milk, especially in our incorporated towns as a beginning.

It is generally conceded that milk and milk products are the most important factors in the food supply of the family. It should be a part of our health program to encourage the increased use of milk, and to educate and arouse public interest in the necessity for the careful control of such an important commodity. It is here that pasteurization is manifest, because it safeguards a food that has such an important bearing on health.

The milk-borne diseases include typhoid and paratyphoid fevers, bovine tuberculosis (in children), septic sore throat, and undulant fever. In 1927 Montreal had 5,000 cases of typhoid fever resulting in 500 deaths, and the epidemic was traced to untreated milk. As a result of one contaminated raw milk supply, Chicago had 10,000 cases of septic sore throat. In Toronto a test of 200 samples of raw milk revealed tubercule bacilli in 4 per cent. Pasteurization has been rigidly enforced since 1915 in that city. As a result, not a single case of bovine tuberculosis has been found in this generation of Toronto children, but children are continually being admitted to Toronto hospitals after having contracted bovine tuberculosis in municipalities where pasteurization is not enforced.

A splendid resolution, passed by the Canadian Council of Child Welfare, is as follows:

"Whereas it has been established that the pasteurization of milk reduces the diarrhoeal diseases of infants, is most effective in controlling epidemics of typhoid fever, scarlet fever, septic sore throat, and other communicable diseases of human origin, is an effective guard against the dissemination of bovine tuberculosis, and is, in addition, the simplest, cheapest, least objectionable and most trustworthy method of rendering milk safe that is known at the present time, therefore be it resolved that

the Executive of the Canadian Council of Child Welfare strongly endorses all efforts of health or welfare organizations directed towards the pasteurization of the community milk supply."

If we could lend our efforts to something definite and would urge every incorporated town to pass a by-law requiring pasteurization, with laboratory equipment sufficient to ensure that this was done efficiently, we would be taking a big step towards a fulfilment of a most important public health measure. And we should always bear in mind the close relationship between individual health and community health. Each favours the other. The conduct of the community affects the individual, and the conduct of the individual affects the group. Even when all has been done publicly that can be done, personal behaviour may be such as to interfere with the individual's receiving the benefits of the group health work himself, and may even interfere with others receiving them. This is true in regard to pasteurization as well as in any other important health measure.

As time marches on, we, as health officers, must bear in mind two matters of fundamental importance: investigation and education. Without them there can be no progress; with their aid, advancement in public health work can be made rapidly.

DOCTOR WANTED

There has been a strong call from the people of Cape Breton, Eastern Districts of Dingwall, Cape North, Neil's Harbor, etc., for a Doctor who is not afraid of hard work. These people are willing to guarantee at least \$1,000.00 per year towards expenses. This practise is capable of turning in \$3,000.00 to \$4,000.00 in extra practise. This part of Cape Breton will be heard of in the future. Dingwall is fast developing into a mining town. The Government is at present building a large golf course to attract tourists. Apply at once to the Red Cross, Halifax, who promise every assistance necessary to the Doctor chosen.

Results of Immunization of Nurses Against Scarlet Fever*

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IN any hospital the problem of epidemic disease amongst the attending staff is of considerable importance both as regards depletion of the staff itself and the quarantine of whole wards or wings of the institution. Immunization against as many as possible of the infectious diseases is a necessity. This principle has for many years been recognized by training schools and large institutions which have required compulsory immunization against smallpox and typhoid fever, and, of late years, it has almost become universal to require toxoid immunization against diphtheria in those who are Schick-positive. Immunization against scarlet fever by injections of diluted toxin has not been nearly so widely used as these other procedures. The reasons for this are varied but appear mainly to be due to lack of faith in the value of the procedure and to a fear of reactions. As our experience at the Saint John General Hospital suggests that this faithlessness and fearfulness are ill-founded, it seems worth while to record our findings over the past thirteen years.

Immunization against scarlet fever was initiated at the Saint John General Hospital in November, 1924, and the practice has been continued since. The procedure at present is to do Dick tests on all probationer nurses within a few weeks of their arrival at the training school. All Dick-positive persons are given weekly injections of Dick toxin, as supplied by the Connaught Laboratoris; five such injections are given, having a total of 18,630 skin-test doses. In 1926-27 and 1933 no Dick tests were were done, but all who had not previously had scarlet fever were inoculated. Since 1934 all have been retested after inoculation and if still Dick-positive have been reinoculated. It may be emphatically stated at this point that no untoward results have occurred and practically no time has been lost; indeed, the training school authorities state that less time has been lost following these inoculations than after receiving typhoid vaccine or diphtheria toxoid injections.

In order to arrive at some comparative basis we have recorded the cases amongst nurses in training during the years 1920-1924 inclusive. During that time there were 224 nurses in training and there were 11 cases of scarlet fever (4 per cent.). From 1925-1937 there were 1,132 nurses in training and there were 5 cases of scarlet fever (0.4 per cent.). Of these, one case in 1925 contracted the disease considerably less than a month after she had received the third dose. Two others were probationers who had not been inoculated. The fourth was a nurse, who, because she was apparently Dick-negative in 1927, was not immunized; she contracted scarlet fever in 1929. The fifth was one who had been Dick-positive, inoculated in 1932, and had not been retested following her course of inoculations; she contracted scarlet fever in 1933. Taking only those in whom immunization can be considered as complete, we have therefore only one case (0.08 per cent). It is of some interest to note here that only 7.2

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per cent. of the nurses gave a history of having had scarlet fever in childhood, whereas 17.4 per cent. were Dick negative.

The question as to the degree of contact with scarlet fever is a difficult one to answer. Certainly this varies from year to year with the incidence of the disease in the community. Each nurse spends about eight weeks in the infectious-disease annex and those in contact with scarlet fever patients may be assumed to be at least temporary carriers of streptococci capable of causing scarlet fever in susceptible persons. There has been no increase in scarlet fever in the general children's wards during the period of immunization. We have no figures as to the incidence of streptococcal infection amongst the nurses but it is our opinion that this has definitely decreased. We do know that whereas the average time lost due to illness for the four-year period, 1921-1924, was 15.4 days per nurse, it is now less than 9 days.

It would appear that toxin immunization is of definite value in reducing the incidence of scarlet fever amongst undergraduate nurses and that it is unattended by disability.

Dr. G. E. Maddison of Moncton, N. B., who graduated from Dalhousie Medical School in 1937, has been awarded a fellowship in public health by the Rockefeller Foundation, according to an announcement made recently. Since his graduation he has been county health officer of Munroe County, Alabama. The fellowship will provide a year's advanced study in public health at the University of Toronto. The Rockefeller Foundation has for many years been awarding such fellowships to medical graduates who show special aptitude for public health and who intend to make that branch of medicine their life work.

Dr. Maddison is a son of Mrs. G. W. Maddison of Moncton and the late Mr. Maddison. (*Star, September 10th.*)

Dr. G. A. Winfield has moved his office from 301 Barrington Street, Halifax, to his home at 131 South Park Street.

Dr. R. G. A. Wood of Lunenburg left the first of September on a three weeks vacation during which he will visit Montreal, Toronto and American cities. While in New York and Cleveland Dr. Wood will do post-graduate work in several of the large hospitals and clinics.

WANTED

A resident physician, unmarried, for Millertown, Newfoundland. Salary, \$200.00 a month. Board, lodgings and office expenses provided.

For further particulars apply to the Secretary.

Communicable Diseases, Past, Present and Future*

J. K. McLEOD, M.D.

Medical Officer of Health, Sydney, Nova Scotia

IT is a rather difficult matter to select a subject that will prove instructive and interesting, but I have endeavoured, as the title indicates, to select one which should give us a full and free discussion with resulting benefit to all who are health officers and to the communities in which we live.

My mind goes back many, many years to the distant past when scientific medicine had not reached the high place it occupies today. Bacteriology and pathology were more or less unknown to us, but with the knowledge of infection given to us by the great Pasteur, and on which Lister built what we now know as Listerism and antisepsis, and with the contributions of later investigators, we have now reached the stage where we should be able to prevent and control communicable diseases.

Half a century ago and previously, taking smallpox as an example of an infectious and contagious disease now designated by the more acceptable term of a communicable disease, a house in which it occurred was placarded and a constable watched it day and night to prevent anyone leaving. Every member of the household and all contacts were vaccinated. Food was supplied by the health authorities at the expense of the municipality until such time as all scabs had disappeared. The house was fumigated with sulphur, the great purifier of that day, and the rooms thoroughly cleaned, after which the patients were released. In some communities a house, or what was known as an infectious hospital, was set aside and the infectious patients removed for treatment, the remaining members of the family being kept under quarantine until all danger was past.

Diphtheria, scarlet fever, and other infectious cases were cared for in a similar way and perhaps I may be allowed to point out that the type of all these diseases was much more virulent than we find it today; confluent and haemorrhagic smallpox were quite common, and the death rate much higher. Diphtheria and scarlet fever were deadly diseases with no specific treatment for either. Compare that with the present method of prevention and treatment and caring for these diseases.

I think that it is safe to state that these diseases have diminished in virulence and the mortality rate is much lower than formerly. It is true that the general use of vaccination has more or less eradicated smallpox. The treatment of diphtheria by antitoxin has greatly reduced the death rate from that disease and the immunization of preschool and school children with diphtheria toxoid has practically eliminated the disease in those communities where immunization is thoroughly conducted. We now look upon this formerly most fatal disease as being well under control and easily preventable.

Encouraging results are being obtained in the prevention of scarlet fever by the use of scarlet fever toxin, and although not as effective as diphtheria

*Presented at a joint session of the Canadian Public Health Association (twenty-seventh annual meeting) and the Nova Scotia Health Officers Association. Halifax, June, 1938.

toxoid in the prevention of diphtheria, yet many cases of scarlet fever are being prevented by the use of this immunizing agent.

Through the chlorination of municipal water supplies, the use of typhoid vaccine as a preventive, and the elimination of carriers from handling food supplies, typhoid fever, which formerly caused a high mortality rate, has been effectively controlled. The late world war demonstrated very conclusively what preventive medicine can do. Practically every soldier was inoculated against typhoid, with the result that comparatively few cases occurred and the death rate was low among our men. When we compare this with our experience in the South African War, when more soldiers lost their lives through disease than by bullets, we can easily appreciate the great advance made in preventive medicine through the different ages. Among 420,000 men in the Canadian Expeditionary Force in the Great War, 421 cases of typhoid were reported, with 14 deaths. All troops received the protective vaccination. In the South African War 57,684 cases of typhoid fever were reported, with 8,022 deaths. These figures indicate the great progress that has been made in the prevention of typhoid fever from the time of South African War in 1899 to the Great War in 1914. The use of typhoid vaccine was unquestionably the factor of major importance in the remarkably low incidence of typhoid fever in the overseas forces in the Great War.

Perhaps we may consider for a few moments our health situation in Nova Scotia. A few years ago the Government of the day decided to reorganize the health department and place at its head a Minister of Health. This was done under the Rhodes Government and the Honourable Dr. Murphy became the first Minister of Health. During this period Dr. Murphy carefully organized the department and laid the foundations of the present effective organization. When the change of Government occurred, the Honourable Dr. F. R. Davis became Minister of Health and he has continued the good work begun by his predecessor. It is a great satisfaction to know that under both Ministers of Health there has been a steady improvement in the health of the Province and the death rate has fallen. The work of this department has not been influenced by political interests. The health officers throughout the Province feel that in Dr. Campbell they have a chief health officer who inspires them with every confidence.

It might be interesting to know that we believe that Sydney is an exceedingly healthful city. The infant mortality rate in 1936 was only 30, approximately half of that of Nova Scotia. This rate is almost the lowest infant mortality rate in the Dominion of Canada. Further, we have not had a case of typhoid fever originating in our city for several years. Cases have been treated in hospital but the patients received their infection in outside districts.

The infant mortality rate of the Province of Nova Scotia has gradually lessened. In 1908 the rate was 108 and this has gradually been reduced until in 1936 the death rate was only 66. The Provincial death rate from tuberculosis in 1910 was 230 per 100,000 and in 1936 it was 92, representing a reduction of more than 90 per cent.

Our views regarding the spread of infection have changed greatly since early days. We now know that infection through direct contact of persons most frequently occurs, and not through rooms, clothing, etc. While no health officer would ignore the danger of infection from clothing, toys, etc., the person ill with the disease must be watched closely to prevent the spread of

disease. Today if a case is isolated properly, it is safe to allow the breadwinner to go to work, provided that he is not handling food.

There are other serious infectious diseases such as infantile paralysis which spread rapidly and are not yet thoroughly understood, nor is the prevention or treatment satisfactory.

Time will not allow me to do more than mention one other disease which I wish to bring to the notice of the meeting and that is syphilis, which, with its effects on all organs of the body, is perhaps the greatest killing disease known to us. It is true that we have made great advances in treatment and every health department, through free clinics and treatment, is doing its utmost to control this disease, but until each and every case is reported, isolated to a certain degree at least, and punishment meted out to those who knowingly spread it, it will be difficult to stamp out this fearful disease.

Now what about the future? What has that in store for us? We all remember the horse and carriage at six miles an hour, the automobile at twenty to sixty miles an hour, the aeroplane at one hundred and fifty miles an hour, and then the racing car at three hundred and twelve miles an hour. What increased speed! The telegraph and telephone, and especially the radio, carry our conversations clear and distinct across the world! What advances in a few years! Is it too much to expect that the future has in store for us the same great advance in preventive medicine that has already been made in the broad field of science? We can look forward to the future with every hope and confidence.

The wedding took place on September 5th. at Parrsboro, N. S., of Miss Gertrude Lillian Hatfield, only daughter of Mr. and Mrs. W. W. Hatfield and Flying Lieutenant Frederick L. Whitehead, M.D., son of Mrs. Whitehead and the late Mr. Whitehead of Charlottetown, P. E. I. The bride is a graduate of the Victoria General Hospital, Halifax, and the groom a graduate from Dalhousie Medical School in 1935. Dr. and Mrs. Whitehead left on a motor trip through the Maritimes and will sail from Quebec the latter part of October for Cairo, Egypt, where Dr. Whitehead is attached to the Medical Division of the Royal Air Force.

Dr. Kenneth A. MacKenzie of Halifax, recently elected President of the Canadian Medical Association, has left on his coast-to-coast presidential tour, during which he will address many of the provincial branches of the Dominion body. Dr. MacKenzie will be away about three weeks.

Dr. Angus J. MacDonald of New Germany, who has been a patient at the Dawson Memorial Hospital, Bridgewater, has returned to his home, much improved in health.

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It is to be distinctly understood that the Editors of this Journal do not necessarily subscribe to the views of its contributors, except those which may be expressed in this section.

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No. 9

THE DOCTOR AS A PATIENT.

I SUGGESTED a night nurse and the surgeon acquiesced. Knowing him to be a man of discernment in such matters I left the selection to him and my faith was amply rewarded in due season. I would repeat, in due season. Time's recording hands crept their weary way round and round the dial until at sharp 11 p.m. the longing eye was at last rewarded by as bonnie a picture as you would want to see. She had not been delayed by accident but I had been predestinated to be one of the first to experience the eight hour private duty system which came into operation that day. Late as the hour was the bath and associated attentions were refreshing and after midnight drowsiness descended and sleep followed as sleep will and would continue if the wash cloth did not begin to flap and the soap to slither, the alcohol to evaporate and the powder to fly, and the nurse to quote, as she tidied up the room—

Awake! for Morning in the Bowl of Night
Has flung the Stone that puts the Stars to Flight:
And Lo! the Hunter of the East has caught
The Sultan's Turret in a Noose of Light.

Why this unseemly haste, this interrupted rest, this repetition as it were—so soon it seemed. Be it understood I have no deep ingrained objection to cleanliness but with the Apostle I would say "be temperate in all things". It would appear that if a nurse goes off duty at seven she must of necessity begin operations on the patient not later than six. That a patient may need sleep more than he does soap is not debated—soap it is. By eight o'clock sleep tries again to knit up the ravell'd sleeve of care when in comes the tray—by this time this patient was too weary to help himself and the food went untouched.

Being of a gentle disposition and full of peace I put up with this routine for four nights and then had to break the news to this conscientious young woman that a few more bouts of nursing would probably finish me—that my constitution was not sufficiently rugged—that between loss of sleep and

the resulting loss of appetite that my days were numbered and furthermore, if she again introduced me to a combination of dawn and cleansing utensils, death would be her portion, and her heart's blood would surely trickle out under the door and down the corridor to drip down the elevator shaft with a dull and gruesome combination of thud, splash and splish as a warning to all who would murder sleep.

It ended by the hospital staff giving me the necessary attention between eight and ten at night as suited their convenience and the same in the morning and my night nurse learned that "they also serve who only stand and wait".

In olden times it used to be accepted that he who paid the piper called the tune. If that privilege has been taken away and if the piper now calls tune Number Eight quite regardless of those who must needs listen then I am very definite in my opinion and emphatic in expressing it, that he who pays the piper must retain the right to say when the tune is to be played.

If a patient requires two hours nursing service in the twenty-four hours such for example as between 2 and 4 p.m. to be required to employ a nurse from 7 a.m. for the 2 to 3 period and to take on another from 3 to 11 in order to have the required attention carried on from 3 to 4 is absurd. Commercially speaking nurses have for sale a very fine article in eight unit lengths, and the more they sell and the more repeat orders the better—to popularize their product should be their primary objective. The quickest way to reduce sales is to refuse to sell the article in a cellophane package which the prospective customer wants, and to insist on doing it up with string and brown paper. With three nurses on duty the division of time may be a matter of indifference to the patient. With one or two on duty, then the doctor and the patient must decide which continuous eight hour period or periods is or are to the patient's advantage and convenience. In my particular case 9 p.m. to 5 a.m. would have suited my convenience, provided of course that a 4 a.m. burnishing was omitted!

H. W. S.

Abstracts from Current Journals

MEDICINE

Laxative and Bowel Consciousness.—By Manford Kraemer, M.D.

CONSTIPATION excluding organic obstruction and spinal cord disease is a symptom arising in the patients mind and not a disease.

The use of laxatives is evidence of bowel consciousness not of constipation. The retention of faeces for five or six days in the bowel causes no symptoms except slight headache and a sense of fullness. The author feels that a programme for the prevention of bowel consciousness and the use of laxative should be inaugurated.

Patients should be advised against the use of laxatives and over emphasis of bowel function.

Physicians should be guarded against prescribing laxatives and treat constipation by withdrawing laxatives instead of prescribing additional preparations.

A curb should be placed on advertisements for laxatives.

Practical Physical Medicine for Chronic Arthritics.—By Robert Phillips.

The author feels that if at the onset of rheumatoid arthritis a six months complete rest was insisted upon, the condition would be greatly alleviated. Failing this a definite rest period of about one hour after each meal should be observed.

The use of splints to rest the inflamed joints and to prevent deformity is of great importance.

Exercise of the involved joints should also be carried out to improve joint function and increase muscle strength.

The use of heat supplied by wool compresses rung out of hot water and applied to joints has been found as effective as more modern methods.

Gentle massage with long strokes in direction of heart is advocated by author.

Electricity in its many forms has not been found effective in the author's experience.

The Classification and Treatment of Arthritis.—By Dennis S. O'Connor.

The classification of arthritis is based on the three etiological factors bacteria, toxins and trauma.

Regarding bacteria the author draws attention to the difference between the invasion of the joints by bacteria and bacterial products. When bacteria enters the joint, white blood cells are called forth and the proteolytic enzymes elaborated by these cells cause liquefaction of tissues. The cartilages due to poor blood supply suffer most.

Bacterial products cause very little white cell reaction.

Regarding the toxins, these may be bacterial or due to intestinal or glandular dysfunction or due to exogenous products such as foods, drugs, or serums or industrial poisons.

Regarding traumatic causes, these include direct injury as well as injury due to muscular dysfunction. Regarding treatment in the bacterial form, the number of pus cells in joint fluid and white cell reaction in the blood is used as an indicator of whether surgical drainage of joint should be performed. The larger the number of pus cells, the greater the danger of tissue destruction and a corresponding increase in the gravity of the patients condition. In mild types rest of joints by plaster casts and increase of bodily resistance is usually sufficient.

In toxic arthritis focal intestinal dysfunction and glandular dysfunction should be eliminated if possible.

Diet should be carefully watched with the idea of eliminating any foods causing reaction and at the same time arranging the diet to increase the patients weight. The digestion should be improved by suitable preparations.

Exercise by causing increased muscular tone is of great value but should not be carried to excess. The blood should receive attention and decrease in R.B.C. and Hb. corrected.

Rest should be assured and the inflamed joints protected by proper fitting splints. The mental attitude of the patient should receive attention. In traumatic arthritis correction of the traumatic factor is indicated.

F. J. M.

OBSTETRICS

The Principles and Practice of Obstetrics.—By Joseph B. DeLee. Seventh Edition, W. B. Saunders Co., 1938.

A new edition of this monumental book is always an event in the obstetrical world. With the death of Whitridge Williams DeLee remains the last of the giants, and his book stands today as the supreme obstetrical achievement in the English language. More and more in recent years I find myself going to it for material which can be found in no other source, and which exceeds in scope anything in the various systems that have been published within the last few years. Take such a condition as Pelvic Thrombophlebitis: DeLee's section on this most important infection is the only one I have seen anywhere that really covers the ground effectively.

Many changes have been made in this new edition. The new advances in our knowledge due to the introduction of X-ray in the diagnosis of disproportion now finds an important place. The physiology of menstruation has been brought up to date to meet the many recent advances due to our increasing knowledge of the pituitary and ovarian hormones. But more than that the book has been written with the general practitioner as much as the hospital practitioner in mind, and the various techniques are described in the way that they can be carried out in the home.

While it is not a student's text-book, being too long for that purpose—I believe that it is the best reference book available to the practitioner. Furthermore, the man following the principles laid down in this book is following what are probably as fine principles as obstetrics knows. And lastly this book shows in every page the fact that its author has lived with his patients in a way that very few obstetricians have been able to do.

H. B. A.

Correspondence

Lawrencetown, Annapolis Co., N. S.,
August 20th, 1938.

To the Editor of the BULLETIN:

Dear Dr. Schwartz:

This "open letter" is written to publicly convey to each participant in the Dalhousie Refresher Course a sincere expression of appreciation for a scholarly course of genuine refreshment. I attended every lecture and clinic from noon of Monday and came away gratified and stimulated—"for they have refreshed my spirit and yours" I Cor. xvi, 18.

Although at present merely a visitor in Canada and a stranger to most of you, the writer is a "Bluenose" who has been a medical missionary in China since 1909 and for 24 of those years a teacher of anatomy and surgery in a Union Medical College. Such a person is in great need of refreshment and perhaps can appreciate fully the quality of the repast.

During my several trips home for furlough it has been a great privilege to make two unhurried visits of some months in England and Scotland to study at medical schools and hospitals in those countries. Owing to administrative duties it has been necessary to visit not a few medical colleges, hospitals and clinics in Canada and U. S. A. These experiences give one a partial threshold for judgment.

In the programme you presented, your courses were well balanced, the content was excellent, timely and of a uniformly high standard. Your lectures and clinics were quite comparable to any I have attended in the English speaking world.

I look forward with eager anticipation and a keen appetite for future refreshment.

Yours in sincere thanks,
W. R. MORSE.

There is a Vacancy for a Resident Interne, who is a Graduate in Medicine

AT

**THE PROVINCIAL SANATORIUM,
Charlottetown, Prince Edward Island**

For Further Information Write

DR. P. A. CREELMAN, Medical Superintendent

OBITUARY

Daniel Angus MacLeod—1888-1938

IN the full flower of a life of exceptional vocational activity, Dr. Dan MacLeod, on the first day of September, 1938, was suddenly lost to his colleagues of the profession on which he had for so long shed luster, and to humanity in affliction on behalf of which he had labored so beneficently.

Dr. MacLeod was born in 1888 at Boulardarie, N. S., a son of Mrs. Murdoch A. MacLeod, and the late Mr. MacLeod. On the completion of his preliminary education in the schools of Point Tupper and Port Hawkesbury, he entered Dalhousie Medical College where he was graduated in 1911.

He entered practice at New Waterford where he remained for four years. In 1915 Dr. MacLeod enlisted with the Dalhousie Medical unit, and then transferred to the Princess Pats, distinguished Canadian regiment.

On his return from the war in 1919, he opened practise in Sydney, establishing a wide reputation as a skilled physician and surgeon.

He was a member of the following societies: Cape Breton Medical Society of which organization he was a past president, Medical Society of Nova Scotia, Canadian Medical Association, and the American College of Surgeons.

Dr. MacLeod was a past president of the City and St. Rita Hospital Medical staffs, provincial government representative on the City Hospital Commission since 1925, and a member of the Nova Scotia Medical Board of Examiners. He had been medical examiner for the Soldiers Civil Re-establishment Bureau and the Pensions Board.

This record is incontrovertible evidence of the confidence placed in Dr. MacLeod by his professional colleagues and lay persons, who early recognized the fiber of his character and the quality of his executive ability on matters involving the welfare of the hospitals and various societies.

Gifted with a facility of speech that is rarely the lot even of those whose vocation is to speak from the public platform, he was always able to interest, and hold the attention of an audience. He was endowed with a keen and logical mind which was best exemplified in argumentative debate and with lucidity of thought was able to evolve a solution to complex problems.

The girders which supported the structure of Dan MacLeod's character as a physician were professional honesty, generosity, kindness and determination. He was honest with himself, with his colleagues and with his patients. He permitted no self-delusions, therefore it was spiritually impossible for him to disseminate delusion where others were concerned. He loved the truth because it was the truth; he abhorred sham, indirection and all sinister dealings, masquerading under the guise of science. His generosity, especially toward his fellow practitioners, will be long remembered. His diagnostic acumen and surgical prowess was recognized and appreciated by them. His kindness is revealed repeatedly in the pains he took to augment the comfort

of his patients. His determination, his high purpose, was evident in everything he undertook, whether it were the slight task of the day or the leadership of an organization or committee.

He worked actively for the hospital and sponsored many measures designed to bring it within the scope of standardization of the American College of Surgeons.

These attributes of Dan MacLeod's enabled him to occupy a prominent place in communal life and the Church to which he gave zealous leadership and support.

To his high attainments and sterling honesty he added so much of modesty, good fellowship, and personal charm that all who knew him well will long pay tribute to his memory. Of him it may be truly said that his was a Christian life dedicated to the highest precepts of his profession.

There comes to the writer's mind these lines from Sir William Osler's essay entitled "Doctor and Nurse" which are so applicable to the life of Dr. MacLeod.

"And, finally, remember what we are—useful supernumeraries in the battle, simply stage accessories in the drama, playing minor, but essential, parts at the exits and entrances, or picking up, here and there, a strutter, who may have tripped upon the stage. You have been much by the dark river—so near to us all—and have seen so many embark, that the dread of the old boatman has almost disappeared, and

When the Angel of the darker Drink
At last shall find you by the river brink,
And offering his cup, invite your soul
Forth to your lips to quaff—You shall not shrink:

Your passport shall be the blessing of Him in whose footsteps you have trodden, unto whose sick you have ministered, and for whose children you have cared."

E. DAVID SHERMAN

The BULLETIN regrets to learn of the death of Mrs. Adelaide Maria Sponagle, widow of the late Dr. John A. Sponagle of Middleton, which occurred at her home on August 23rd.

The late Mrs. Sponagle was born at Yarmouth, a daughter of the late Amos W. Allen and Hannah M. Allen, formerly of Middleton. On August 14th, 1906, she was married to Dr. Sponagle, who predeceased her in February, 1937. She was a graduate of Acadia Seminary and a member of the United Church of Canada and was always actively identified with the work of the church. The deceased is survived by one brother and one sister, Joseph R. Allen, and Mrs. Bertha L. Cox, both of Middleton.

The funeral was held on August 25th. from her late residence, Main Street, with interment at Pine Grove Cemetery, Lower Middleton.

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 Mepy).

Those physicians wishing to make use of the free diagnostic services offered by the Public Health Laboratory, will please address material to Dr. D. J. MacKenzie, Public Health Laboratory, Pathological Institute, Morris Street, Halifax. This free service has reference to the examination of such specimens as will assist in the diagnosis and control of communicable diseases: including Kahn test, Widal test, blood culture, cerebro spinal fluid, gonococci and sputa smears, bacteriological examination of pleural fluid, urine and faeces for tubercle or typhoid, water and milk analysis.

In connection with Cancer Control, tumor tissues are examined free. These should be addressed to Dr. R. P. Smith, Pathological Institute, Morris Street, Halifax.

All orders for Vaccines and sera are to be sent to the Department of the Public Health, Metropole Building, Halifax.

Report on Tissues sectioned and examined at the Provincial Pathological Laboratory, from August 1st., to September 1st., 1938.

During the month, 239 tissues were sectioned and examined, which with 20 tissues from 5 autopsies, makes a total of 259 tissues for the month.

Tumours, simple.....	31
Tumours, malignant.....	48
Tumours, suspicious of malignancy.....	5
Other conditions.....	155
Tissues from 5 autopsies.....	20

**Communicable Diseases Reported by the Medical Health Officers
for the month of AUGUST, 1938.**

County	Infantile Paralysis	Chickenpox	Diphtheria	Influenza	Measles	Pneumonia	Scarlet Fever	Typhoid Fever	Tbc. Pulmonary	Tbc.-other forms	V. D. G.	V. D. S.	Whooping Cough	Goitre	Septic Throat	Diarrhoea	TOTAL
Annapolis.....	1	..	..	2	..	..	3	1	11	..	..	..	18
Antigonish.....
Cape Breton.....	1	7	12	10	4	..	15	..	1	1	1	..	..	..	..	3	55
Colchester.....	1	..	1	..	..	..	..	..	..	..	..	..	..	..	2
Cumberland.....	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Digby.....	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2
Guysboro.....	1	..	22	..	..	..	..	..	..	..	..	..	..	..	23
Halifax City.....	2	..	2	..	8	3	..	..	..	..	..	..	..	..	15
Halifax.....
Hants.....	20	2	..	..	..	..	..	..	..	..	..	..	22
Inverness.....	2	..	..	1	..	1	..	..	..	..	..	..	..	4
Kings.....	1	5	..	..	..	..	2	..	2	..	..	..	2	..	12
Lunenburg.....
Pictou.....	1	..	1	..	1	..	..	..	..	..	3
Queens.....
Richmond.....	..	1	..	..	6	1	2	..	..	..	1	..	1	..	..	..	12
Shelburne.....
Victoria.....
Yarmouth.....	..	1	1	1	..	..	..	..	..	..	7	..	..	2	..	..	12
TOTAL.....	1	11	18	18	56	3	27	5	5	1	16	1	12	2	2	3	181

Positive cases Tbc. reported by D.M.H.O.'s. 44.

RETURNS VITAL STATISTICS FOR JULY, 1938

County	Births		Marriages	Deaths		Stillbirths
	M	F		M	F	
Annapolis.....	15	11	9	6	6	1
Antigonish.....	10	8	4	4	6	0
Cape Breton.....	101	76	42	30	23	3
Colchester.....	22	22	21	9	8	0
Cumberland.....	38	39	19	20	9	1
Digby.....	21	17	17	12	3	0
Guysboro.....	13	4	8	2	2	1
Halifax.....	76	72	94	48	52	3
Hants.....	13	14	13	3	3	0
Inverness.....	19	14	6	9	8	0
Kings.....	16	21	10	6	5	2
Lunenburg.....	24	22	11	18	23	0
Pictou.....	31	38	28	15	19	2
Queens.....	11	7	8	0	5	0
Richmond.....	7	13	0	3	6	0
Shelburne.....	18	9	6	8	9	1
Victoria.....	4	3	2	1	3	0
Yarmouth.....	13	19	14	14	7	0
	452	409	312	208	197	14

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12 ampoules of 2 c. c.*

also

*in boxes of 50 and 100
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of 30 c. c.*

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Personal Interest Notes

The marriage took place in Brookline, Mass., on August 16th of Miss Margaret L. Taylor, R.N., daughter of Mrs. Aubrey N. Crowe and the late William Taylor, and Dr. Kenneth M. Grant of Halifax, N. S. Following the ceremony Dr. and Mrs. Grant left on a wedding trip to Kedgemakooqe, and are now residing at 197 South Park Street, Halifax, N. S.

Dr. J. W. MacIntosh and family of Halifax visited Mrs. MacIntosh's parents, Dr. and Mrs. R. D. MacLachlan at Charlottetown, P. E. I., the latter part of August.

Dalhousie Gets Large Gift from Hon. J. C. Tory

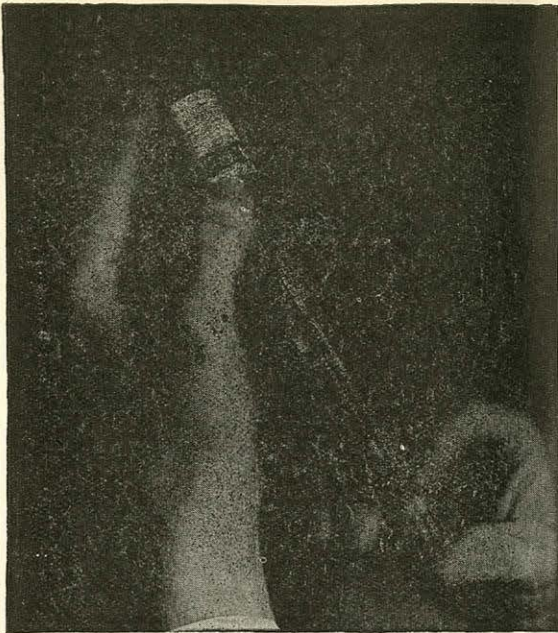
During the recent Reunion ceremonies at Dalhousie University, one of the Governors decided to mark the occasion by a gift. This is the Hon. J. C. Tory, LL.D. He has turned over to the University sufficient securities to pay off completely the balance required for the new Medical and Dental Library, and something more.

A recently published pamphlet on the "Pressing Needs of Dalhousie University", sets forth a list of requirements, the aggregate cost of which is \$4,410,000. In handing the documents about the securities to President Carleton Stanley on Saturday morning, August 20th, Dr. Tory said: "That will be the first contribution to the four and a half million dollars you need" As a matter of fact, this contribution is somewhat over one per cent of that large sum. This is by no means the first occasion on which Dr. Tory has come to Dalhousie's assistance. He is one of the three Dalhousie Governors who made the Dalhousie Book Club a possibility. He has most generously assisted the Student's Loan Fund, the Library, and the University endowment generally. His present gift is, from several points of view, exceedingly well-timed.

The Hon. J. C. Tory, a former lieutenant-governor of Nova Scotia, and always a leader in educational matters during the years when he lived in the province of Quebec, is firmly of the opinion that the Medical and Dental schools of Dalhousie University deserve state support, since they are of incalculable usefulness to the community of Eastern Canada and Newfoundland. He has more than once expressed this opinion, to which emphasis is now lent by his own signal generosity.

Another circumstance which makes Dr. Tory's gift so timely can now be published. On December 16th. last the Carnegie Corporation of New York promised Dalhousie University \$50,000 not for building, but for the purpose of medical education, provided the University could raise in Canada a like amount for like purposes. To this fund contributions have been made already by Dr. William Inglis Morse of Paradise, N. S., A. B. Wiswell, Peter Jack, and another anonymous donor in Halifax, and other substantial amounts have been pledged by friends of the University. (*Star*, August 22).

We are very pleased to hear that Mrs. G. W. T. Farish of Yarmouth has been reported resting comfortably following a recent emergency operation.



A.P.L.

rational therapy for cryptorchidism

"Sufficient clinical evidence is at hand to indicate that endocrine therapy alone is capable of bringing about the descent of a cryptorchid testis in about 50 per cent of all cases. It is useful in identifying those testes which cannot be expected to descend at puberty and which, therefore, should be operated on at an earlier age. When operative procedures for the condition become necessary, the preliminary gonadotropic therapy facilitates surgery by elongating cord elements, and, lastly, the postoperative results are greatly improved by the endocrine treatment." *Editorial: Endocrine Therapy of Cryptorchidism, Jour. A.M.A. 110: 288-289 (Jan. 22) 1938.*

A.P.L.—the chorionic gonadotropic hormone—is biologically standardized after the technique of Dr. J. B. Collip, McGill University.

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No. 450 in 5 and 10 cc. vials

No. 450—100 rat units (Collip) per cc.

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