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The Management of Chronic Gastric and Duodenal Ulcer*

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IT is a proud privilege and honour which is granted to me to be here in Halifax to pay a pious tribute to the memory of an illustrious son and beloved member of the medical profession of Canada.

Although I am overcome with the distinction of being the second John Stewart lecturer, I am at the same time deeply conscious that this high and much treasured award is no personal prize, but a recognition of the place that Britain has striven to deserve and hold in the field of surgery.

I bring you warm and affectionate greetings from your medical colleagues, and from your numerous friends in Britain.

The first Stewart lecture was delivered by Sir James Learmonth, King's surgeon and Professor of Surgery to the University of Edinburgh, a man of world-wide reputation and one of the recognised leaders in the profession. His presentation to you about a year ago, when he paid such a glowing and erudite tribute to Dr. Stewart and dealt with the intricate problems of "Inflammation" with such profound knowledge, has indeed set a high standard of excellence for his successors, and it would be vain for me to hope to rise to the full height of this opportunity.

John Stewart was born in Cape Breton in 1848, and died at his home in Halifax in 1933 at the advanced age of 85 after a long period of ill-health.

He began his study of medicine in the newly organized medical school in Halifax, but he completed his course of training in Edinburgh where he graduated with honours and where he became associated with the greatest benefactor of mankind, the father of modern surgery, the unique Joseph Lister. In 1875 he was Lister's dresser, and in 1876-7 his clinical clerk. When Lister moved to London to occupy the chair of Surgery at King's College Hospital he brought four of his students, Sir Watson Cheyne and Dr. Stewart as his house-surgeons, and Mr. W. H. Dobie and Mr. James Altham as his dressers.

The impress of this great personality upon Stewart lasted a life time. His warm affection, admiration and open emulation of his chief, as a man, surgeon, pioneer and torch-bearer of the profession, were unbounded from the start and remained as an unquenchable flame during a long, busy and successful life, during which time honours were showered upon him.

The only immortality of those who practise the art and science of medicine lies in the extent to which they lay foundations for their successors.

Dr. Stewart was Professor of Surgery at Dalhousie for many years, Dean of the Medical Faculty from 1919 to 1933, and a valued member of the Senate. The Lister Oration was brought into effect largely through his efforts and in 1924 he was chosen as the first orator.

During the Lister celebrations in 1927, Edinburgh aptly honoured him by conferring on him the degree of F.R.C.S. During World War I he served

* The second John Stewart Memorial Lecture given in Halifax, N. S., on October 19th, 1950.

with the Canadian Forces with distinction and received the C.B.E. from King George V.

I mention some of these marks of rightful recognition which came in their time to a great man who was happy in his life and principles and who never once looked for or expected personal honours.

He never forgot that true happiness is a condition of mind and not a disposition of circumstances, and his principles were not merely prejudices.

He recognised, too, that the most treasured honours which are granted to us are those which are conferred by our own colleagues.

He belongs to the famous figures of medicine in the past, and no one can doubt his rank and stature, because it was given to him to see his labours bear fruit, for which this country—and indeed the world—have just cause for lasting gratitude.

I have chosen the popular subject—"The Management of Patients with Chronic Gastric and Duodenal Ulcer" for this lecture for the following reasons:

(1) It is one which greatly interests all members of the medical profession.

(2) Apart from its diagnostic and therapeutic implications, it is rapidly becoming a social and economic problem.

(3) Peptic ulcer is a common disease and affects some 8 per cent of the adult population of Britain. It is increasing in frequency. It ranks tenth as a cause of death, and twelfth as a cause of invalidism and absence from work. It accounts for approximately 5 per cent of admissions to any large general hospital.

(4) Although during recent years considerable advances have been made in the diagnosis and treatment of patients suffering from chronic gastric and duodenal ulcer, much remains to be discovered concerning the aetiology of these lesions and the best methods of therapy in individual cases.

(5) The recording of my present convictions and impressions as to the management of these cases, which are the result of some 20 years' work in gastric surgery, during which period more than 1,500 operations have been performed for peptic ulcer of the stomach, duodenum and anastomotic junctions, might claim your approval or might call for helpful criticism.

A studied and unbiased review of one's own work, although misleading in some aspects when enthusiasm is unbridled, is always a severe and salutary discipline.

Gastric Ulcer

Gastric ulcer differs from duodenal ulcer in many important aspects. The aetiology of these ulcers is as yet unknown apart from the part played by the acid gastric chyme in their perpetuation.

It seems possible that excessive or perverted stimulation of the vagus nerves favours duodenal ulceration, whereas overaction of the sympathetic fibres to the stomach, especially when vagal influences are damped or obliterated, predisposes to gastric ulcer.

This statement is significant in the light of reports of a high incidence of gastric ulcer following vagotomy for duodenal ulcer.

A gastric ulcer may undergo malignant degeneration. Statistics show that

this sinister complication may occur in 5-20 per cent of cases. In my own series of cases the incidence is 10 per cent. A duodenal ulcer rarely undergoes cancerous transformation. A simple gastric ulcer responds to medical treatment more readily and dramatically than a duodenal ulcer, but it inexplicably breaks down with equal rapidity, and recurrence is all too frequent.

The term 'peptic ulcer' as used to embrace the simple ulcers of the stomach and duodenum is therefore misleading, especially where therapy and the potentialities of disaster are concerned.

Gastric ulcer is essentially a surgical problem. The uncomplicated duodenal ulcer calls for medical care. A patient with a gastric ulcer has a cancer in the stomach until it is proved otherwise. The ulcer is innocent if it heals staunchly, as shown by radiology and gastroscopy, and displays no signs of recurrence after a long period of careful observation. Repeated barium meal X-ray examinations at lengthening periods are called for in the follow-up of such cases to prove that a cure has been satisfactorily effected.

Medical treatment is indicated in the younger age-group patients who give a short history of indigestion and who have an ulcer on the lesser curvature of the stomach. There should be a quick and satisfactory response to effcient, well-organised and carefully supervised in-patient treatment. If there is no response to such treatment or if the ulcer displays a sluggishness or reluctance to contract after 4-5 weeks of intensive treatment, it is wiser to advise surgical measures rather than to persevere stubbornly with medical therapy.

Old and feeble patients with concomitant disease, such as pulmonary, cardiac or kidney disorders, are not the surgeon's concern.

Reasons for Advising Early Operation

Operation is clearly advised for the majority of patients suffering from chronic gastric ulcer, for these reasons:

(1) The risks of complications such as perforation, haemorrhage, malignant transformation etc., under medical management are at the present time greater than those of operation.

(2) The operative risk following a well-conducted course of preoperative treatment is low, being about 1-2 per cent in the hands of those who are trained and expert in gastric surgery. The late results are excellent in 90 per cent of cases, and the risks of marginal ulceration are less than 1 in 400.

(3) It is impossible to distinguish a peptic gastric ulcer from an ulcerating carcinoma of the stomach except by:

(i) miscroscopic examination of the lesion in the gastrectomy specimen; and (ii) producing repeated radiological (and in some cases gastroscopic) evidence that the ulcer once bridged as the result of medical treatment has remained doggedly healed for some years.

Indications for operation

The indications for operation may be summarised as follows:

(1) Acute perforation.

(2) Haemorrhage from the base of the ulcer which threatens life.

(3) Failure of in-patient medical treatment carried out with intensity and persistence, i.e., the ulcer shows no signs of *adequate* healing after 4-5 weeks' treatment.

(4) Recurrence of ulceration, i.e., the ulcer has apparently healed following a course of in-patient treatment but recurs again after a variable period of home treatment and observation.

(5) The ulcer is large and of the penetrating variety, but the size of the ulcer is not always diagnostic. Small ulcers may be malignant.

(6) The ulcer is situated in the pyloric segment of the stomach, on the greater curvature or on the anterior or posterior wall some distance away from either curvature.

(7) The patient is over the age of 50 and gives a *short* history of indigestion.

(8) The combination of gastric ulcer and duodenal ulcer.

(9) Recurrence of ulcer following such operations as: (i) Vagotomy alone; (ii) simple suture for acute perforation; or (iii) local excision or V-resection of ulcer.

(10) Hour-glass stomach.

(11) Chronic ulcer of the stomach associated with anacidity.

(12) The economic factor and expedient circumstances have to be considered in certain cases. For instance, surgery may be needed to save a man's job rather than his life. Again, gastrectomy is preferable to medical supervision in the indigent or in those who are incapable of co-operating in their treatment, i.e., patients with mental disorders.

Choice of Operation for Gastric Ulcer

In the past a large number of operations have been performed for chronic gastric ulcer, including simple excision, V-excision or cautery-destruction of the ulcer combined with gastro-jejunostomy, sleeve resection, the various plastic operations for hour-glass stomach, gastromyotomy, sympathectomy, vagotomy, vaso-ligation, and, finally, partial or sub-total gastrectomy.

All these operations have been found wanting with the exception of the last mentioned, i.e., gastro-duodenal resection.

The only operation which has stood the test of time has been partial resection of the stomach followed by either anastomosis of the gastric pouch to the duodenum, i.e., the Billroth I methods of repair or to a loop of proximal, jejunum—the Polya types.

When we operate for chronic gastric ulcer we should operate as for cancer of the stomach, because between 10 and 20 percent of the cases diagnosed as simple peptic ulcer eventually prove to be ulcerating carcinomata or show on microscopical section malignant change at the margin of the crater. The resection therefore should be wide and extensive in all cases.

After excision of three-quarters or more of the stomach, the surgeon has a choice of anastomosing the small gastric remnant to the duodenal stump, as in the Billroth I types of repair or to the proximal jejunum. He should never sacrifice total ablation of all conceivable extensions of the disease process in order to satisfy his bias in favour of one type of operation as compared with

another. In other words, except in elderly and debilitated patients in whom an easy and rapid operation confined to the supra-colic department seems indicated, it is wiser to carry out the Polya procedure following wide gastric excision rather than to perform a Billroth 1 operation.

I must emphasis one point, namely, that the only satisfactory operation for gastric ulcer is gastro-duodenal resection, and here there should be no compromise whatsoever. If this operation is *impracticable* owing to the enormity of the extension of the ulcer or to its inextricable cohesion to adjacent vital structures, it is better to close the abdominal wound at once and to persevere with medical measures rather than to perform some type of palliative procedure, the results of which are doomed to failure.

The patient who has a large penetrating gastric ulcer is not a suitable candidate for *urgent* surgery. He should be treated by stringent medical means for at least a month, preferably by the milk drip method, to ascertain whether the ulcer can be induced to shrink appreciably thus rendering excision possible at a later date.

Most gastric ulcers respond very rapidly to the continuous milk drip method, i.e., feeding with an indwelling gastric tube over a period of days or weeks. If the ulcer proves recalcitrant and unrelenting it usually implies that such a lesion is malignant in character.

For the high gastric ulcer situated near the cardia—so-called cardial ulcers—*Pauchet's operation* is the best and safest. Pauchet's operation consists in mobilization of the greater curvature, the pyloric region of the stomach and duodenum, after which, the first part of the duodenum is transected and the distal end securely closed. The stomach is drawn firmly downwards to the right and two small Payr clamps are applied high up on the greater curvature and body of the stomach. The points of the Payr clamps, which are placed side by side, are about two inches distant from the lesser curvature. The stomach is divided between the Payr clamps and a good rim of lesser curve is cut away almost up to the cardiac orifice. It may be possible to include the cardial ulcer in the segment which is excised. If this is impossible, owing to the deep penetration of the ulcer, the remnant of attached stomach wall is trimmed away and the ulcer margin and its deep crater are coagulated with a diathermy button. The lesser curve is then reconstructed and the operation is completed as in the Billroth I operation or Poyla types of repair.

Once we are committed to operation for gastric ulcer we should not be influenced by the fact that as the result of pre-operative therapy the ulcer, which once was sizeable on skiagrams, has practically healed or has revealed itself as a puckered scar. Gastrectomy should be proceeded within such cases because, as I have endeavoured to stress, these lesions are impish in the proclivity they display in healing and breaking down.

Vagotomy alone should *never* be performed in cases of gastric ulcer; in fact vagotomy alone for chronic duodenal ulcer has been shown to be a potent cause of chronic peptic ulcer of the stomach. Whether this is due to the withdrawal of vagal influences, to the unhampered flow of sympathetic impulses, to alteration in the gastric chyme, or to gastric atony, remains to be proved.

In a personal series of 44 cases of simple vagal resection for duodenal ulcer, which I reported before a meeting of the Royal Society of Medicine in 1948, no fewer than 3 gastric ulcers have subsequently appeared at varying intervals following vagotomy alone for chronic duodenal ulcer. This is a

significantly high proportion, and it is an important point which has been commented upon recently by other surgeons.

Results of Partial Gastrectomy for Gastric Ulcer

What are the results of partial or sub-total gastrectomy for gastric ulcer? They are exceedingly good. The operative mortality is low. In my last consecutive series of 200 cases there have been two deaths, one being due to uraemia and the other to pulmonary infarction. The late results are in every resect gratifying, there being 90 per cent of satisfactory cures. There are a few cases following subtotal gastrectomy in which some adjustment has to be made, but there have been no profound incapacitating dumping syndromes in this series. I have as yet to encounter complication of stomal ulceration following partial gastrectomy for gastric ulcer.

The results of partial gastrectomy for gastric ulcers are infinitely better than those which follow gastro-duodenal resection for duodenal ulcer. These patients, by leading normal and useful lives, are revivified and shake off all the trammels of invalidism.

DUODENAL ULCER

I have said that *gastric ulcer* is essentially a *surgical* condition, and I now emphasise that the uncomplicated *duodenal ulcer* is primarily a *medical problem.* Sugery is called for only in cases of duodenal ulcer where complications have occured during the course of the disease, these complications being acute perforation, hemorrhage which cannot be controlled by medical measures, pyloric obstruction, and—for want of a better term—intractability.

There are many definitions of the word *intractability.* Whilst it is commonly used by physicians to imply the failure of medical treatment, it also aptly describes the person who has lost patience with both his symptoms and his treatment. An ulcer may be said to be intractable when it can no longer be tolerated by the patient. The intractable patient with an intractable ulcer is one of the biggest problems in medical therapy to-day. This embraces a big group with duodenal ulcer who suffer no attacks of bleeding or obstruction, but who have a few recurrent episodes of ulcer pain every year, who not infrequently change their doctor and their treatment, and who search out weird and strange remedies, even from friends and unqualified practitioners. They belong to a large body of people who suffer from a "neurotic overlay", who are worried about their business affairs, who are constantly living at a very high pitch, and who seek solace in many things they should eschew, such as alcohol, smoking, late nights, mental over-excitement and other excesses. Such patients may be intolerant of their symptoms and of the prescribed treatment, but they are often still more intolerant of the curb of their liberty. Such are poor candidates for surgery, and this group yields the largest number of surgical failures.

In such intractable cases of duodenal ulcer, who declare the fatuity of medical treatment, it is not so much a question of deciding which is the best operation to perform as which is in fact the most suitable patient for the operation.

Indications for Medical Treatment

I would say that in cases of chronic duodenal ulcer *medical treatment* is clearly indicated under the following conditions:

(1) All patients who have uncomplicated ulcers, specially if these have been present for only a short time.

(2) All patients giving a *long* history of ulcer in which the recurrences of ulcer pain are infrequent and capable of prompt management, and who can lead a life of tolerable activity.

(3) All patients of 30 years of age or under, unless their lesions are definitely complicated.

(4) All *elderly* patients in whom the symptoms are mild and do not impair their efficiency.

(5) Any patient whose ulcer is complicated by some medical condition which would render operation hazardous.

(6) Psycho-neurotic patients who have hyper-irritable gastrointestinal tracts, and whose ulcers are not complicated by deep penetration to the pancreas, repeated haemorrhages or obstruction.

Indications for operation

What then are the indications for operation? They are these:

(1) Acute perforation.

(2) Haemorrhages of massive and recurrent types especially in patients over the age of 45 (most cases).

(3) Pyloric obstruction due to scar stenosis.

(4) Intractability—in *certain* carefully selected cases.

(5) The combination of gastric and duodenal ulcer, or duodenal ulcer associated with chronic duodenal ileus.

(6) Recurrence of ulceration following an inadequate operation such as simple excision of ulcer, pyloroplasty, suture of a perforation followed months or years later by recurrence of severe symptoms, and vagotomy *alone* for duodenal ulceration which is so frequently followed by gastric retention.

Medical treatment for duodenal ulcer as practised to-day in a number of hospitals is wholly unsatisfactory, being too ephemeral and perfunctory.

No patient who is examined for the first time with a chronic duodenal ulcer should receive *home* treatment. All patients with a duodenal ulcer, when once diagnosed, should be hospitalized, thoroughly investigated, and treated along scientific lines. Furthermore, the patient must be prepared to accept the principles of the "ulcer life" which he will have to lead for many years.

The trouble in Britain is that we have not sufficient beds in our hospitals to treat all these cases with the intensity which they demand or for long enough periods. Very often too, these patients rebel against hospitalisation because it involves their being away from their work, their families and their usual pursuits, and they are intolerant of the limitations imposed upon them and resentful of being as semi-invalids.

Again, I am very doubtful whether our medical measures, apart from rest in bed, sedative treatment and anti-acids, play such a significant part in the management of these cases as does, for example, a rise in salary, a new occupation, a change of scenery, or the securing of a happier state of family life.

The *principles of medical treatment* may be outlined as follows:—

(1) *Mental and physical rest.* As I have said, one of the greatest problems in

connection with medical therapy is the question of home or hospital treatment. I believe that as soon as a diagnosis of chronic duodenal ulcer is made, the patient should be admitted to hospital and be put to bed to secure the maximum degree of mental and physical rest. Hospitalisation makes it possible to educate the patient in the care which he will need to exercise to procure sound healing and prevent recurrences. Furthermore, it provides the most favorable opportunity for adequate neutralisation of the acid.

(2) *Neutralisation of acid* is best affected by a well balanced bland diet rich in vitamins and assimilable proteins, and the administration of alkaline draughts or powders. This can be best achieved by the milk drip method which was introduced by Einhorn (1910) and popularised by Winkelstein (1933) and which has been our recognised procedure since 1934. The patient is given alkaline medicines, anti-spasmodics, amino acids, vitamins A,B,C and D, sedatives such as phenobarbitone, and as much as six or seven pints of diluted milk in 24 hours, the drip being run into the stomach at a slow rate day and night, thus effectually neutralising the acid at *all times*, and more especially during the time of its greatest production—through the night and in the early hours of the morning. Other schemes fall short during the late hours of the night when patients are sleeping and nurses are tired. It is a difficult matter for a kind-hearted nurse to wake a patient at 3.30 in the morning to tell him the must take an alkaline powder!

(3) *Removal of irritating elements which produce spasm and hyperacidity* cannot be too strongly emphasied.

Alcohol and smoking rank with fatigue and tension as the most frequent causes of recurrence. The patient who undergoes medical treatment must promise at all times to forego these popular indulgences. Patients who have undergone an effiicient course of medical treatment in hospital—and by effcient I mean prolonged, systematic, well-supervised and disciplined—should be checked up at intervals both by means of X-rays and by gastric analysis and should be ordered a special post-ulcer regime. The so-called "ulcer life", with the elimination of smoking, alchol, indiscreet eating, late hours, worry and fatigue, is indispensable to stomach integrity in individuals with the ulcer diathesis.

The late results of medical treatment are disappointing. Patients who harbour a chronic ulcer of the duodenum for *more* than five years are unlikely to be permanently cured by conservative measures, and massed statistics prove that *lasting cure* can rarely be achieved in more than 25 percent of those treated by the ablest therapists.

It would seem to me that success depends not so much upon the treatment employed as upon the conscientiousness of the patient, and perhaps also the personality of the attending physician who has made a special study of this disease.

Choice of Operation For Chronic Duodenal Ulcer

By far the best operation for chronic duodenal ulcer is removal of the first part of the duodenum together with the ulcer, combined with a high gastrectomy, the operation being completed by one of the Polya methods. The procedure which is applicable in about 80 per cent of the cases and which has produced the most consistently good, safe and effective results is the ante-

colic Poyla-Hofmeister, the proximal jejunal loop being attached to the reconstructed lesser curvature of the stomach.

It has been said that following a wide excision of the stomach and first portion of the duodenum together with its callous lesion it is immaterial whether the operation is completed by the ante-colic or retro-colic method, or whether a valve is fashioned at the lesser curvature or not, that the incident of the "dumping syndrome" is not influenced by the type of anastomosis of the stomach to the jejunum, or by the loop being taken from left ro right or right to left.

I can state that from the knowledge gained from personal experience, that in the majority of cases the ante-colic operation with a valve is superior in its immediate and late results to the retro-colic, but that the posterior procedure is indicated when the mesocolon is long and lax and everything lends itself to the performance of this operation.

If the mesocolon is short and stumpy and the resection has been extensive, then to perform the posterior type of repair entails the production of a funnel in the mesocolon in which the two limbs of jejunum become tethered together or twisted. Again the stomach pouch in retracting high up beneath the diaphragm may produce a kink in the short afferent limb, thus predisposing to obstructive symptoms.

The factor which should remain foremost in the surgeon's mind is the patient's safety. If the patient has a *deeply* penetrating ulcer of the duodenum which is difficult of access and surrounded by inflammatory adhesions and oedema, if he is obese or exceptionally muscular, or if he is deemed unable to withstand the ordeal of a radical resection surely it is better to perform a vagotomy combined with a gastro-jejunostomy rather than risk the hazards of duodenal fistula, acute pancreatitis, obstructive jaundice, sub-phrenic suppuration or some of the other grave complications which are prone to follow in the wake of a protracted and perilous gastro-duodenal resection, especially when carried out by a surgeon who is more stubborn than skillful.

Alternative operations, particularly for patients with so-called irremovable duodenal ulcers, are *Bancroft's* procedure, and *antral exclusion* followed 4-6 weeks later by partial gastrectomy employing one of Polya types of repair.

The *Bancroft operation*, i.e., the dissection of the pyloric mucous membrane down to the sphincteric outlet, combined with a wide gastric excision, is a difficult, delicate, tedious and gory affair, and unless well executed is followed by a high percentage of duodenal fistulae. Most text-books and articles dealing with this operation state that after the mucous membrane has been freed to the outlet of the stomach, it is tied off and then invaginated like the appendix stump. But in my opinion this ligature is a necrosing one and should in all cases be omitted.

After the mucous tube has been freed, a purse-string suture of the finest silk, mounted on an atraumatic needle which picks up *only the submucosa*, should be inserted, and after the mucous membrane has been cut away the small stump be carefully invaginated into the pyloric canal before the purse-string suture is tied. The redundant seromuscular cuff is trimmed off and closed with a sewing-machine stitch to obliterate all dead spaces,after which it is smothered with adjacent omentum.

In these and in all other cases of duodenal ulcer in which a closure of the duodenal stump has been difficult to effect or appears precarious, it is best

to provide *adequate drainage* with sheets of corrugated rubber tubing through a stab incision in the right flank below the tenth costal cartilage.

Antral exclusion combined with partial gastrectomy, followed 4 weeks later by resection of the antral stump and first part of the scarred or ulcerated duodenum, is popular in certain clinics.

It has certain drawbacks, however. The patient may refuse the second operation, as he may feel very much better as a result of the first undertaking. During the period of waiting between the first and second operations he may develop a jejunal ulcer, sometimes of enormous proportions. I have known one case in which a huge stomal ulcer occurred within the first week of the exclusion operation, and this experience has been recorded by other writers.

Furthermore, a second operation is entailed with all risks which accompany an added procedure, hospitalisation is prolonged, and the economic factor is involved.

Vagotomy is a most arresting study in human physiology. It is too early to speak with authority about the *late* results of this operation which has been so cogently sponsored by Dragstedt. But we can at least say that it holds a definite place in the treatment of chronic duodenal ulcer and marginal ulceration.

Vagotomy alone is not a satisfactory operation for duodenal ulcer. In a personal series of 44 cases the results were considered to be bad or unsatisfactory in over 60 per cent. Nor is gastrojejunostomy or pyloroplasty alone for duodenal ulcer a satisfactory operation.

Gastro-jejunostomy is undertaken nowadays only in the aged and infirm patients with pyloric scar stenosis.

Sub-diaphragmatic vagotomy and gastro-ieiunostomy act synergistically (Crile, 1950), and in my experience this combination has proved a safe and effective measure in the treatment of certain cases of duodenal ulcer.

What cases should I select for synergistic vagotmoy and gastro-jejunostomy?

I should select the most difficult cases, those in which the lesion is inaccessible, or impossible to mobilise owing to deep penetration and surrounding inflammation, and the contracted and foreshortened gut is welded to the choledochus and possibly to the common hepatic artery. I would carry out this combined procedure if the patient is suffering from some complicating disease such as asthma, chronic bronchitis, coronary sclerosis, diabetes and the like, or is extremely obese or muscular. For the puny ulcer with clamant symptoms vagotomy followed by pyloroplasty is preferred to partial gastrectomy.

I would perform vagotomy for these cases of gastro-jejunal ulcer following *sub-total* gastrectomy in which the mechanics of the operation appear perfect, but rarely for stomal ulcer arising after gastro-jejunostomy for duodenal ulcer. For the latter complication, unpicking the anastomosis and restoring the parts of their normal anatomical positions is in order if the duodenum appears to be unravished by scars of previous disease. If stenosis, marked puckering or actual ulceration is detected in the first portion of the duodenum, the surgeon will be well advised to proceed forthwith with partial gastrectomy, with or without the added refinement of vagotomy.

For duodenal ulcer the surgeon should have a choice of a number of procedures, as there are so many variable factors to be considered before and

during the conduct of operation. He has to choose wisely, for a mistake may cost a valuable life. In reviewing our work we can all bring to mind many preventable mistakes before, during and after operation, each of which has led to tragedy and regrets.

The good and reliable surgeon learns a lesson from each case, whether it be successful or otherwise.

Success is not the result of individual endeavour but rather of team work. The composition of a "team" is well known to you. It should be compact and flexible and should not be allowed to become too large and cumbersome. It should take pride in the noble work which incites it to a high pitch of perfection, in an ever increasing improvement in the results achieved, and the enthusiastic and loyal comradeship which it engenders.

Concludions

My conclusions then are these:

(1) Every patient with a gastric ulcer has a cancer in the stomach until it is proved otherwise.

(2) In cases of gastric ulcer medical therapy is excellent *pre-operative* treatment.

Surgery should be invoked if the ulcer recurs after a course of efficient hospital treatment or if it stubbornly refuses to heal after 4-5 weeks of medical therapy.

(3) There is only one adequate and reliable operation for chronic gastric ulcer, and that is partial or sub-total gastrectomy.

(4) The treatment of the uncomplicated duodenal ulcer is a medical problem.

The intractable patient with an intractable uncomplicated ulcer is one who is constantly searching for a short-cut out of his "difficulties".

(5) When surgery fails, we are in the habit of blaming the mental state of the patient rather than the mechanical imperfections of our operation.

(6) The surgery of duodenal ulcer concerns the complications of the disease—perforation, haemorrhage, obstruction, and the failure of medical therapy.

The definition of failure is more clearly expressed by the patient than by the attending physician.

(7) The most satisfactory operation for chronic duodenal ulcer is gastro-duodenal resection, and this is feasible in about 80 per cent of cases.

(8) Vagotomy *alone* or gastro-jejunostomy *alone* is unsuitable for duodenal ulcer. When combined, however, the immediate and short-term results appear to be gratifying. This combined operation is a good and challenging alternative to partial gastrectomy.

(9) With difficult, inaccessible, large, inflammatory, penetrating duodenal lesions it is better to play for safety than to risk the possibility of a lethal complication following a highly skilful dissection.

(10) For the small anterior wall duodenal ulcer associated with severe symptoms and excessive acid production vagotomy may be combined with pyloroplasty—but pyloroplasty is, on the whole, a poor substitute for gastro-jejunostomy.

(11) Success in gastric surgery can only be attained by skill, experience, knowledge and team work, with all that is implied in these words.

In paying my sincere tribute to the memory of an outstanding pioneer in Canadian Surgery I have been aware of the fact that I have done so in the company of many who knew, loved and honoured him. His immortality depends upon his successors.

I know them. I have no qualms about the future.

A Practical Program of Immunization[1]

C. B. Stewart, M.D., M.P.H.[2]

As you all know, there have been no recent discoveries of dramatic new immunizing agents. At least there have been none for the more common diseases which we have to deal with in this region. We are using similar antigens to those employed fifteen or twenty years ago with only minor modifications. Nevertheless, I think that some of our concepts regarding immunization are due for a thorough overhauling. What was true fifteen or twenty years ago is not necessarily applicable today, even though the same immunizing agents may be in use. The changes have come about, not so much because of the development of new antigens, but rather because of the tremendous reduction in the incidence of certain communicable diseases, with resultant changes in the immunity status of the population. Unfortunately, the authors of some of our text-books are guilty of quoting figures which are out-dated by twenty or thirty years. Still worse, they reiterate as well established principles the conclusions which are based on these out-dated figures. Let me quote two examples, one relating to tuberculosis and the other to diphtheria immunization of infants.

As a medical student I was taught that 80 to 90 per cent of persons, when they reached adult life, had a positive tuberculin reaction. That had been true in Canada during the 1920's. It was already changing in the 1930's. It is now utterly false. Yet, it is still repeated and printed as if it were an immutable truth. A student nurse told me last year that she had just been given this statement in a set of lecture notes and she wanted to dispute the matter with me.

Last week I did tuberculin tests on the new classes of student nurses of two Halifax hospitals. There were only 4 positive tuberculin reactors in the group of 64. This is about six per cent—a tremendous change from the 80 to 90 per cent who would have been positive only a relatively few years ago. The figures for positive reactions in nurses are often below 20 per cent today and always below 30 per cent in this province.

What does this mean from a practical standpoint? It certainly means that we now have a more susceptible population with respect to tuberculosis than we had in earlier years. A primary infection with tuberculosis, which heals, confers some degree of resistance. This is not complete, it is true, but numerous studies have shown that the tuberculosis attack rate is five to eight times as high in tuberculin negative reactors as in tuberculin positive reactors, when both are exposed to the risk of infection. We now have an adult population which, although exposed less frequently to tuberculosis, is much more susceptible if exposure does occur. This is a fact which should be kept in mind by those who are responsible for the health of nurses, medical students and others who have an undue degree of exposure to tuberculosis. It applies to those working in general hospitals as well as in tuberculosis institutions. In the ten years 1937 to 1947 the tuberculosis rate in Halifax nursing students and Dalhousie Medical students was sixteen times as high as it was in other Dalhousie students of the same ages (3) We now use B.C.G. vaccination in an attempt to provide at least a partial degree of protection. This was not

(1) Presented at the Dalhousie Refresher Course, October 20, 1950.

(2) Professor of Epidemiology, Dalhousie University.

so necessary twenty years ago, but the situation has changed because of the reduction of naturally acquired immunity.

A second example of the change in the immunity status of our population is perhaps even more striking. For many years our text-books have stated dogmatically that babies do not need diphtheria immunization until they are six to nine months of age because they have a congenital immunity. But where is this in-born immunity derived from? It is a form of passive immunity conveyed to the child from the mother. Obviously, then, it requires an immune mother to produce an immune child. Again, in the 1930's it was true that 80 to 90 per cent of adults, including most pregnant women, had a negative Schick test, indicating a high degree of protection against diphtheria. This disease was widespread both in sporadic cases or carriers and in periodic epidemics. Most adults were immunized by nature through recognized or mild clinical attacks or an unrecognized carrier state. But this is no longer the situation today. During World War II Halifax experienced the largest diphtheria epidemic which has developed on this continent in recent years. Many of the cases occurred in adults. It was found that 70 to 80 per cent of adults were Schick positive and hence diphtheria susceptible—a complete reversal of the previous situation.

In 1948 Cooke and her associates, (2) studied the antitoxin titer of the blood of more than two hundred infants before and after immunization with diphtheria-tetanus toxiod. She found that only 25 per cent of the babies under three months and only 9 per cent of those between three and six months had a protective level of diphtheria antitoxin before immunization.

Modern mothers do not protect their babies by passive immunization because they are not immune themselves.

These, then, are only two of the often-quoted statistical "facts" upon which some of the prinicples and practices of immunization have been based. I thought that they needed a little airing to remove the moth-ball odor. Other examples could be quoted. But let us get down to the crux of the situation and see what are the modern trends in immunization, particularly for infants?

There have been three recent trends in practical up-to-date immunization programs.

(1) The use of combined antigens

(2) Greater emphasis on booster doses

(3) Earlier immunization of infants

As you know, agents for active immunization are always derived from the causative organism or its products. They consist of vaccines prepared from living or dead organisms, or bacterial products such as toxins or toxoids. Each of these substances is a highly specific antigen. To immunize an infant against several diseases it used to be necessary to employ several agents. This was time-consuming for the parents and the doctors, and was anything but pleasant for the baby who was on the receiving end. Modern science has now provided us with good combined antigens in several different combinations. A triple vaccine-toxoid containing diphtheria toxoid, pertussis vaccine and tetanus toxoid is one of the most common agents. Mixtures containing any two of these three antigens are also available. The immunizing power of the antigenic agent when in combination with others is just as potent as when

it is alone. In fact, its effect has been reported in some instances to be enhanced. Local and general reactions have been reduced to a low level, and dosages are now reasonably small. In older children there is still a place for the single or double antigens. For example, a child who has had whooping cough does not need pertussis vaccine and may be given diphtheria-tetanus toxoid or diphtheria toxoid alone. But it is recommended that the infant be given the triple antigen.

Greater emphasis is now placed on booster doses. There is little doubt that the doctor was over-sold on the effectiveness of immunizing agents in the past and he in turn over-sold the public. The result is that we now have people who believe they are immune for life after one smallpox vaccination perhaps twenty-five or thirty years ago. This is not true. Re-vaccination is needed about every five years to assure protection. We now believe, too, that diphtheria immunization of the infant requires *four* doses to be fully effective. It used to be so hard to get parents to bring their children in for immunization that a great effort was made to get a one-shot or two-shot preparation, such as alum-precipitated diphtheria toxoid. It is now clear that these antigens are not good enough, unless repeated doses are used. Of course, people would still like to get a one-shot immunization, just as they would like a penicillin injection which would last for weeks. But public education has now reached a level where it is not so difficult to get parents to bring children in for a full course of immunizations, and I believe we should insist on an adequate program without short-cuts. It has been shown that a fourth dose of diphtheria toxoid, given three or six months after the usual series of three doses, produces a marked rise in antitoxin titer in the blood, and this persists much longer than after the standard three doses. The modern program is, therefore, a four-dose schedule, the first three doses three or four weeks apart and the fourth dose either three or six months later.

Perhaps the most important recent trend has been toward earlier immunization. This has not yet been adopted as widely as it should be, but I am sure it will come. There used to be two main arguments against immunizing a young infant. One was that the child had a natural passive immunity from its mother which protected it for 6 to 12 months. I have already referred to Cooke's work which has shown that this is no longer true in three-quarters or more of infants, as far as diphtheria is concerned. It never was true of whooping cough, against which the infant usually gets little passive protection from its mother.

The other main argument against early immunization was that the development of immune bodies was poor in the infant under six months, and, therefore, you could not successfully immunize a young baby. This argument has been maintained in spite of the well known fact that infants can and do develop immunity to small pox vaccination even in the first month of life. However, there is some truth in this statement as it pertains to diphtheria immunization, although it is not so important today as it was twenty-seven years ago,when it was first recognized. So far as I can determine, the only work done prior to 1948 on this aspect of immunization of small infants was Park's (2) pioneer work in 1922. He found that the toxin-antitoxin mixture then in use was not effective in immunizing infants within the first two weeks after birth. That is not surprising since most of the infants born in 1922 would have a passive immunity from the mother and their own antitoxin

would neutralize the surplus toxin in the toxin-antitoxin mixture, removing the antigenic stimulus. Today diphtheria toxoid is used instead of toxin-antitoxin and the interference of antitoxin with the antigenic stimulus seems to be less pronounced. In addition, as already indicated, Cooke showed that only one-quarter of the infants under three months acquire a passive immunity from the mother today. In most infants there is, therefore, no passive antitoxin to interfere with active immunization.

There were also some authorities who believed that the young infant did not have an adequate antibody response anyway, whether passively immune or not. Cooke's work shows that this is not sufficient to be of practical significance. She found that infants under three months could be almost as effectively immunized as older children. Her figures were 83 per cent successfully immunized under three months, 87 per cent in the three to six months age group, and 95 per cent in those of six to fourteen months. She used a two-dose toxoid at two-month intervals. I doubt if the difference would be as great if three doses of fluid toxoid were used at three week intervals. In any event, 83 per cent success is worth achieving in those under 3 months.

In the twenty-five per cent of infants with a protective level of antitoxin Cooke had only 30 per cent success in stimulating an active immunity in those under three months, but she had 90 per cent success in those of three to six months. Even in the presence of passive immunity there seems, then, to be no reason for delaying immunization beyond the age of three months. The response in all children is adequate. In his clinic on Tuesday Dr. Holt referred to the fact that premature babies do not develop immune bodies normally, but he indicated that their response to diphtheria toxoid was normal after the age of three months.

The above comments, I believe, successfully refute the arguments that young babies cannot be successfully immunized against diphtheria and that in any event they do not need it until later in life. However, the best argument for early immunization is to protect against whooping cough, not diphtheria. This is an extremely dangerous disease in young infants. It causes as many deaths as measles, diphtheria and poliomyelitis combined, an average of over 450 deaths a year in Canada. The anoxia from severe paroxysms of coughing may also produce irreversible cerebral damage in some infants. The most important practical feature of the statistics is that 75 to 80 per cent of all whooping cough deaths occur in children under one year of age and most of these under six months. There were 70 deaths in Nova Scotia between 1944 and 1948 and 52 of these were in infants under one year. Standard immunizing programs starting at six months are too late to prevent most of these deaths.

Most children, then, do not get an effective passive immunity against whooping cough from the mother. They need early protection and, in my opinion, should get it by active immunization not later than the third month. Another method is to immunize the mother against diphtheria and whooping cough during the prenatal period. I am not convinced that this is the best practical procedure. The baby still needs whooping cough vaccine at 3 months since it gains little passive immunity, but the passive diphtheria immunity may interfere with effective use of the triple-toxoid. The child may have to be given pertussis vaccine alone at 3 months, and diphtheria-tetanus toxoid at 6 to 9 months. This requires too many visits to the doctor. If any immunization or booster doses are given to the mother in the pre-natal period, only

pertussis vaccine should be used, and I am not sure that its value has been fully established. I would rather see a more effective early immunization program for infants given a good trial first.

A reasonably good and practical immunization program for infants may then be summarized as in Table 1.

TABLE I

IMMUNIZATION PROGRAM FOR INFANTS

Age of Child	Interval between doses	Antigen	Dosage
3 or 4 mos.	————	Triple Toxoid-Vaccine	0.5 c.c.
4 or 5 mos.	3-4 wks.	ditto	1.0 c.c.
5 or 6 mos.	3-4 wks.	ditto	1.0 c.c.
		Plus Smallpox Vaccine	
	1 week	Read vaccination Re-vaccinate if necessary	
8 to 12 mos.	3 to 6 mos.	Triple Toxoid Vaccine	1.0 c.c.

You start at three months and give three doses subcutaneously at three or four weeks intervals. Then do not forget the very valuable fourth dose six months later. This program has proved to be a very practical one and is used in the clinics operated by the Halifax City Department of Health. The fourth dose may be given three months rather than six months after the series of three if desired. In fact, it has some advantages at that time. The doses in this table are for the Connaught Laboratory product. Some others require as much as 2 c.c. per dose.

One other point is that smallpox vaccination should be included at this time. There is no objection to giving this at the same visit as the third toxoid because any reactions that occur from toxoid will be over in a day or so, and the vaccination will not cause any major reaction for a week or more. But do not vaccinate at the second visit or the arm may still be sore when the third toxoid is due. Smallpox vaccination reactions cause less disturbance in a child of 5 or 6 months than in a child over one year. The local reaction causes less trouble, the general reaction is less, and complications such as secondary vaccinations or secondary infection at the original site are fewer. Moreover, immunity is less durable in many persons than was originally believed. In fact, we now have a population in Nova Scotia which is highly susceptible to smallpox. A large proportion of adults have lost their immunity. The soil is ready for a vigorous epidemic if one unrecognized case happens to occur. The only preventive is vaccination, which is least unpleasant if done in infancy with periodic booster re-vaccinations during school years and in adult life. You will also note the suggestion that the vaccination reaction should be read in one week. Even with the best technique there are a considerable number of failures. A vaccination certificate should never be given at the time of administration of the vaccine.

One other feature deserves brief comment. There has been increasing use of tetanus toxoid in recent years, and the triple antigen recommended in this program includes this substance. This is without doubt one of the most efficient antigens we have. The military services found it most effective in World War II. If a person has been immunized with tetanus toxoid, a booster dose will result in a very rapid production of antitoxin. It is therefore necessary to give only a booster dose, not antitoxin, in the event of an injury where there is a risk of anaerobic infection. This avoids the danger of serum reactions. This response is good at least two years, and probably as long as five years, after the last immunization.

It should be observed that there are some authorities who think it is unnecessary to immunize children against tetanus. They point to the low incidence of the disease in this area. On the other hand, anyone who has seen a person with tetanus would do a good deal to avoid even an occasional case. In addition, although cases are relatively infrequent, the number of people who are given prophylactic tetanus antitoxin is not small. Toxoid would replace this. I am sure that all of you must have considerable doubt at times as to whether an injury warrants administration of the prophylactic antiserum. Children in particular have a penchant for getting numerous cuts, splinter wounds and other lesions which have some risk of anaerobic infection. Serum reactions and sensitization can be avoided if the children have been actively immunized. They are given a booster dose of the toxoid at the time of injury. However, one of the difficult practical problems is to be certain whether an injured person has previously received tetanus toxoid. The mother will often be able to tell you no more than the fact that the child had "shots." She does not know what they were for. If the child was not your own patient for immunization, or if triple toxoid is not in wide-spread use, you may be in a quandary as to whether to use a booster dose of toxoid or prophylactic serum. I think all mothers should be told at the time of immunization that the children have been given toxoid for tetanus. They should be warned to tell the doctor so, if the child is ever injured and taken to another doctor. This will impress the fact on at least a few mothers, but it is far from a completely effective solution to the problem.

An adequate booster program throughout school life may be summarized as in Table 2.

TABLE II

BOOSTER DOSES

Age of Child	Antigen	Dosage
3 yrs.	1st "booster" triple toxoid-vaccine	0.5 c.c.
yrs-6 yrs. (before school)	2nd "booster" triple toxoid-vaccine Re-vaccination, Smallpox vaccine	0.5 c.c.
10 yrs.-11 yrs.	3rd "booster" Diphtheria-Tetanus Re-vaccination, Smallpox Vaccine	0.5 c.c.
15 yrs.	Shick test with control, Schick reading, 1 week later. "Booster" combined Diphtheria-Tetanus or Diphtheria Toxoid alone, if, positive	0.5 c.c.

This booster program may be more effectively organized through the school health services, but I do not believe that the initial immunization should be done through the school clinics but by the family physician.

In conclusion, I wish to make a plea for the more effective practice of clinical preventive medicine. I believe that an adequate immunization program for infants is one of the most important foundation stones of preventive medicine. Together with good prenatal care for the pregnant woman and routine periodic supervision of the diet and general health of the infant at least in its first year, immunization against the more dangerous communicable diseases forms the third foundation stone of the structure upon which the infant's physical health is built. The fourth basic need is for the development of sound mental health.

I also most firmly believe that all four of these basic preventive medical programs dealing with pre-natal and pediatric care, immunization and mental hygiene are the responsibility of the practitioner of clinical medicine—the family physician and the specialists in obstetrics, pediatrics and psychiatry. These programs are not now, and never should have been, the responsibility of health departments. They are an integral part of the practice of clinical medicine. The modern medical practitioner is, or should be, just as much concerned with the prevention of illness in the families under his medical supervision as he is with the treatment of the sick. The health department in its turn should limit its responsibility to the health problems of the community which are beyond the scope of the family unit.

Health Departments have frequently been accused of "stealing the practice" of the family doctor by undertaking various clinical services. This accusation is partly true. Government Departments have encroached on clinical fields which should not have been their concern. On the other hand—and this statement may not be very popular—it is my impression that the only clinical fields into which health departments have encroached are those in which the family physician had failed to accept his rightful responsibility and had not been doing an adequate job. One of these is the immunization of infants.

This is not a blanket criticism. There are some doctors in Nova Scotia who are doing excellent work in the practice of preventive medicine for the whole family, as well as in the care of those who are ill. Several of these men have the busiest practices in their communities. This indicates that it is not solely lack of time which keeps others from doing as well. On the other hand, there are many doctors who delegate all responsibility for immunizations and other preventive procedures to the nearest health officer. Several doctors have personally told me that they do not bother with immunizations because these are adequately looked after in the school clinics which are held once a year. In my opinion these school clinics should be only for "booster" doses. Primary immunization of school age children is a good example of locking the door after the horse has been stolen. It is too late to save the infants who die in their first year—and that is where ninety per cent of the risk lies.

I am expressing strong views on this subject because I am not anxious to see a system of state medical practice in this country. But I believe that government encroachment on private medical practise will continue to grow unless a better job is done in the practice of clinical preventive medicine,

expecially pre-natal care, pediatric care and immunization programs. I think the Honorable Paul Martin, Minister of National Health, gave a strong hint at the luncheon meeting of the Canadian Medical Association here last June. I do not remember his exact words, but he stated in effect that his department was very much interested in having more preventive medicine practised by the family physician. He also intimated that, if this were done, the profession need not fear government intervention in medical practice. I think the inference is clear. If we are as interested in preventing state medicine as we say we are, action is necessary, not words.

Here is one field where action should be effective. In Nova Scotia last year 750 babies died before reaching their first birthday. This mortality rate ranks next to heart disease and cancer. Ninety per cent of these deaths were from causes which are largely preventible by prenantal care of the mother, good obstetrics, routine pediatric care of the infant, and early and adequate immunization against communicable diseases.

These figures are a challenge, gentlemen, which I believe the profession of this province can and will meet.

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Personal Interest Notes

Doctor T. C. Routley, General Secretary of the Canadian Medical Association, was re-elected chairman of the World Medical Association's Council at the fourth general assembly held in New York in October. The association represents more than 500,000 doctors in 39 countries.

At the graduation of seven student nurses from the Nova Scotia Hospital School of Nursing, Dartmouth, held in October, Doctor R. O. Jones of Halifax, was the guest speaker.

Doctor C. N. Morrison, formerly of New Waterford, has established a practice in Halifax.

The marriage took place in Truro on October 28th of Miss Nettie Eileen Bailey, R.N., daughter of Mr. and Mrs. F. R. Bailey, and Doctor Seymour Gordon MacKenzie, son of Doctor and Mrs. S. G. MacKenzie.

Doctor Gordon Wallace Bethune of Halifax, Dal. 1943, has received a Fellowship of the Royal College of Surgeons of Canada. Those who received Certification in Medicine were Doctor Harold Cecil Read, Dal. 1943, Doctor William Arnold Murray, Dal. 1943, Doctor William Inglis Morse, Dal. 1945: Certification in Sugery, Doctor Harry Leslie Stewart, Dal. 1944, Doctor Frederick Joseph Barton, Dal. 1941, Doctor John Sidney Wright, Dal., 1943, John Osler McNeil, Dal. 1945, Doctor John Andrew Ritchie, Dal. 1942: Certification in Obstetrics, Doctor Donald Fraser Smith, Dal. 1945.

Doctor Ralph Sers of Latvia has set up practice at Issac's Harbor. Doctor Sers is a graduate of Riga University, and before coming to Nova Scotia served on the staff of the Northampton Hospital in England.

The following hospitals in Nova Scotia are included in the Approved List issued by the American College of Surgeons. Highland View Hospital, Amherst (provisional); St. Martha's Hospital, Antigonish; Nova Scotia Hospital, Dartmouth; Glace Bay General Hospital, St. Joseph's Hospital, Glace Bay; Camp Hill Hospital, Children's Hospital, Grace Maternity Hospital, Halifax Infirmany, Halifax Tuberculosis Hospital, Royal Canadian Naval Hospital, Victoria General Hospital, Halifax; St. Mary's Hospital, Inverness (provisional); Blanchard-Fraser Memorial Hospital, Nova Scotia Sanatorium, Kentville; Aberdeen Hospital, New Glasgow; Hamilton Memorial Hospital, North Sydney (provisional); City of Sydney Hospital, St. Rita Hospital, Sydney; Harbor View Hospital, Sydney Mines (provisional); Colchester County Hospital, Truro (provisional); Eastern Kings Memorial Hospital, Wolfville; Yarmouth Hospital, Yarmouth.

The Bulletin extends congratulations to Doctor and Mrs. M. S. MacDonald (Olive Petrie) of Glace Bay on the birth of a daughter, Mary Cecilia Agnes, on September 24th; to Doctor and Mrs. R. B. Miller of Pugwash on the birth of a son, Thomas Dickson, on October 17th; to Doctor and Mrs. F. R. Townsend (Marion Adair) of Halifax, on the birth of a daughter, Adair Elaine, on

October 25th; to Doctor and Mrs. D. G. Black of Digby on the birth of a daughter, Barbara Jean, on October 30th; to Doctor and Mrs. R. S. Grant of Halifax, on the birth of a son, Arthur Gray, on November 2nd, to Doctor and Mrs. R. W. Auld (Barbara Strong) of Kensington, P. E. I., on the birth of a daughter on November 4th; to Doctor and Mrs. C. F. Keays (Phillis Dickie) of Halifax, on the birth of a daughter, Shirley Jean, on November 11th; to Doctor and Mrs. N. K. MacLennan (Fay MacLellan) of Halifax, on the birth of a son, Neil Charles, on December 21st; to Doctor and Mrs. C. N. Morehouse of Noel on the birth of a son, Charles Robin, on December 11th.

Doctor C. E. Kinley of Halifax was recently appointed a member of the Provincial Medical Board, succeeding the late Doctor M. J. Carney, and will serve on the Board for a term of three years.

Doctor C. J. W. Beckwith of Halifax addressed the last meeting of the Lunenburg Board of Trade on the objects of the Nova Scotia Tuberculosis Association.

Doctor John I. H. Laurie, son of Colonel K. C. Laurie of Oakfield, formerly with the Nova Scotia Department of Health, has been made Manager of the Medical Department of Merck and Company, Limited, in Montreal.

Doctor John A. MacDonald, formerly practising at New Waterford, has left to take up the position of director of Student Health Services and Unicersity Physician at the University of New Hampshire, in Durham, N. H.

Doctor W. G. Colwell, Associate Professor of Obstetrics and Gynaecology, Doctor C. W. Holland, Professor of Medicne, and Doctor C. B. Stewart, Professor of Epidemiology, of the staff of Dalhousle University, have recently been appointed members of the Main Board of Examiners of the Medical Council of Canada.

Doctor Ella Pearl Hopgood, Assistant Superintendent of the Nova Scotia Hospital at Dartmouth was invested with the Insignia of the Order of St. John by the Prior of the Order, His Excellency the Governor General, at a special ceremony held in Rideau Hall, Ottawa, November 14th. Doctor Hopgood's outstanding work in the Order has been recognized in various ways. In September, 1949, His Excellency the Governor General of Canada awarded her a Priory Vote of Thanks. In the same year, on the recommendation of the Ambulance Committee in London, England, she was awarded an Honorary Life Membership in the St. John Ambulance Association. On August 30, 1950 she was admitted to the Order of St. John, the oldest Order of Chivalry in the Empire, with the rank of "Officer." This recognition was sanctioned by the Sovereign Head of the Order, King George VI.

Registration

97th Annual Meeting The Medical Society of Nova Scotia
September 5, 6, 1950

Halifax, N. S.

Dr. A. R. Morton, Halifax
Dr. D. F. Macdonald, Yarmouth
Dr. E. I. Glenister, Halifax
Dr. G. A. Dunn, Pictou
Dr. S. R. Johnston, Halifax
Dr. R. L. Brownrigg, St. Stephen, N. B.
Dr. G. R. Mahaney, Bridgetown
Dr. H. A. Creighton, Lunenburg
Dr. C. H. Reardon, Halifax
Dr. W. A. Hewat, Lunenburg
Dr. A. W. Titus, Halifax
Dr. A. E. Blackett, New Glasgow
Dr. J. J. Carroll, Antigonish
Dr. H. F. Sutherland, Sydney
Dr. H. G. Grant, Halifax
Dr. M. J. Macaulay, Sydney
Dr. H. J. Pothier, Weymouth
Dr. P. S. Cochrane, Wolfville
Dr. Margaret E. B. Gosse, Halifax
Dr. A. L. Murphy, Halifax
Dr. N. H. Gosse, Halifax
Dr. Eric W. Macdonald, Reserve
Dr. M. G. Tompkins, Dominion
Dr. H. J Devereux, Sydney
Dr. P. E. Belliveau, Meteghan
Dr. F. J. Hogg, Antigonish
Dr. E. F. Ross, Halifax
Dr. S. B. Bird, Liverpool
Dr. K. P. Hayes, Halifax
Dr. J. A. Langille, Amherst
Dr. D. R. S. Howell, Halifax
Dr. H. R. Phillips, Halifax
Dr. C. B. Stewart, Halifax
Dr. A. D. Kelly, Toronto, Ontario
Dr. F. L. Whitehead, Saint John, N. B.
Dr. Frank G. Mack, Halifax
Dr. H. R. Corbett, Sydney
Dr. J. Philip Macdonald, Sydney
Dr. A. L. Saunders, Louisbourg
Dr. W. K. House, Halifax
Dr. W. A. Murray, Halifax
Dr. R. C. G. Hawkins, Halifax
Dr. H. W. Schwartz, Halifax
Dr. J. W. Reid, Halifax
Dr. D. W. N. Zwicker, Chester
Dr. A. W. Ormiston, Sydney
Dr. N. B. Coward, Halifax
Dr. D. M. MacRae, Halifax
Dr. W. G. Colwell, Halifax
Dr. G. B. Wiswell, Halifax
Dr. H. A. Fraser, Bridgewater
Dr. C. L. Gosse, Halifax
Dr. S. Marcus, Bridgewater
Dr. Robert M. MacDonald, Halifax
Dr. J. R. Macneil, Glace Bay
Dr. C. H. Young, Dartmouth
Dr. H. C. Still, Halifax
Dr. F. M. Fraser, Halifax
Dr. A. G. MacLeod, Dartmouth
Dr. J. P. McGrath, Kentville
Dr. C. J. W. Beckwith, Halifax
Dr. Florence J. Murray, Seoul, Korea
Dr. L. C. Steeves, Halifax
Dr. H. R. McKean, Truro
Dr. A. L. Sutherland, Sydney
Dr. F. O'Neil, Sydney

Obituaries

Doctor Edward Murray McDonald, well-known medical practitioner in Sydney for the past fifty years, died in Los Angeles, California, on December 29th, after a brief illness. He had gone to Victoria B. C. in the spring to visit his sister, Mrs. Arthur Armstrong, and was spending the Christmas season with friends in Los Angeles.

One of the two surviving Dalhousie graduates in medicine of 1898, Doctor McDonald retired only last year. He was born at Port Morien on August 4, 1869, son of the late Mr. and Mrs. John McDonald. He attended Sydney Academy, and after graduating from Dalhousie did post-graduate work in London, England.

Doctor McDonald is survived by his widow, the former Mary Agnes MacLennan, two daughters, Mrs. Lilias Toward, Baddeck, Helen at Halifax, and one son, Doctor Robert M. at Halifax; one sister, Mrs. Arthur Armstrong, Victoria, B. C. and one brother, Jack at Pictou. Funeral services were held at Sydney.

The death occurred in December of Doctor Arthur Silver Burns, at the home of his daughter Evelyn (Mrs. Bernard Moss), Leonia, New Jersey. Doctor Burns was born at Kingston Station in 1879, and attended Kingston schools and Horton Academy in Wolfville, and then entered Acadia University where he graduated with the degree of Bachelor of Arts in 1898, and graduated in medicine from McGill University in 1903.

He began general practice in Bridgewater in partnership with Doctor H. A. March and in 1905 started his own practice at Bridgetown, and seven years later moved to Kentville. During the First World War he served with the Canadian Army Medical Corps in England and France with the rank of Captain. On his return from overseas he resumed his medical profession in Kentville which he continued until shortly before the outbreak of the Second World War. He then went to New York where he took special studies in psychiatry at Columbia Medical School. Following this he returned to Kentville, but did not engage in active practice except when the need arose through a shortage of doctors.

Doctor Burns is survived by his widow, the former Pearl Josephine Morton of Clementsport, one daughter, Mrs. Moss at Leonia, and a sister-in-law, Miss Alberta Morton of Kentville.

Funeral services and interment were held at Leonia, New Jersey.

The Bulletin extends sympathy to Doctor W. E. Hirtle of Sackville, N. B., and Doctor L. R. Hirtle of Halifax on the death of their father, Mr. M. A. Hirtle, who died at Halifax on October 21st; to Doctor C. K. Fuller of Yarmouth on the death of his brother, D. Carlisle Fuller, who died at Yarmouth on December 12th, and to Doctor J. C. Worrell of Halifax on the death of his father C. F. Worrell, who died at Oakville, Ontario, on January 4th.