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1911

"The limits of assimilation of the different sugars vary and are as follows:

"Grape sugar: In babies, about 5 grams per kilogram (Langstein and Meyer).

"Grape sugar: In one-month baby, 8.6 grams per kilogram (Greenfield).

"Galactose: No accurate data.

"Levulose: (Lower for babies than adults.) One gram per kilogram (Keller).

"Maltose: Over 7.7 grams per kilogram (Reuss).

"Lactose: 3.1-3.6 grams per kilogram (Grosz).

"Cane sugar: Probably about the same as lactose (Reuss).—*J. L. Morse, and F. B. Talbot: Physiology and pathology of the digestion of the carbohydrates in infancy, Boston M. & S. J., 164:852-855, June 15, 1911.*

1912

"Maltose has for many years been considered one of the most valuable of infant foods in modifying milk formulas; but the German school in the last few years has called special attention to the value of this sugar as a substitute for milk and cane sugars in conditions of intestinal fermentation. It is more easily assimilated and more rapidly absorbed than lactose or saccharose and it may be taken therefore by the infant in larger quantities without producing sugar fermentation."

"Maltose is especially indicated in the feeding of very young and delicate infants, and in all cases where either milk or cane sugar has produced intestinal fermentation and sugar intoxication. In the feeding of maltose it has been found advisable to combine it with about equal parts of dextrin. In Germany, and later in this country, 'Soxhlet's Nahrzucker' (which contains maltose 52.44 per cent., dextrin 41.26 per cent., and sodium chlorid 2 per cent.) has been largely used. Mead's Dextrin-Maltose (malt sugar), which contains about equal parts of dextrin and maltose, is a similar preparation which may be used instead of milk sugar or cane sugar for modifying milk mixtures."—*B. K. Rachford: Diseases of Children, D. Appleton & Co., New York, 1912, p. 125.*

1913

"It is well to start with one ounce (albumin milk, or albumin-buttermilk) to every pound of body-weight in the twenty-four hours, increasing gradually until two or three ounces to the pound of body-weight are being given. Then add sugar, preferably a malt sugar, about one-fourth of an ounce at a time to the twenty-four-hour quantity, until an ounce or an ounce and a half is being given."—*J. Foote: Principles of treatment in malnutrition and atrophy of infants, Interstate M. J., 20:1913, No. 6.*

1914

"Milk sugar and cane sugar may be used in infant feeding, but my preference is for malt sugar. Mead and Johnson put up a convenient preparation which they call Dextrin-Maltose and which consists of maltose 51 per cent., dextrin 47 per cent., sodium chloride 2 per cent., and which has a food value of about 110 calories per ounce."—*J. A. Gannon: Whole milk dilutions in feeding normal infants, Washington Med. Annals, 13:38-43, Jan., 1914.*

1914

"Dextrin-maltose causes the greatest gain in weight, cane sugar less, and lactose produces the least gain."—*M. S. Reuben: Observations on milk station infants, Arch. Pediat., 31:176-196, March, 1914.*

1914

"A composite opinion of the sugars is in favor of dextrin-maltose, milk sugar and cane sugar in the order named."—*R. A. Strong, Essentials of modern artificial feeding of infants, Lancet-Clinic, March 14, 1914.*

1914

"Experiments show that sugars vary in their rate of absorption, some being assimilated rapidly, while others

distribute their nutriment over a longer period. For example, maltose is most promptly assimilated, cane sugar next and milk sugar slowest."

"The condition in which dextrin-maltose is particularly indicated is in acute attacks of vomiting, diarrhea and fever. It seems that recovery is more rapid and recurrence less likely to take place if dextrin-maltose is substituted for milk sugar or cane sugar when these have been used, and the subsequent gain in weight is more rapid."

"In brief, I think it safe to say that pediatricians are relying less implicitly on milk sugar, but are inclined to split the sugar element, giving cane sugar a place of value, and dextrin-maltose a decidedly prominent place, particularly in acute and difficult cases."—*W. D. Hoskins: Present tendencies in infant feeding, Indianapolis M. J., July, 1914.*

1915

"In the severe cases (of diarrhea) he (Benson) uses Finkelstein's casein milk with malt sugar. He also believes that dextrin-maltose is to be preferred to milk sugar or any other sugar, as the infants gain more rapidly and digest more easily this form of sugar."—*R. A. Benson: Observations on 1,500 artificially-fed infants, Med. Century, Feb., 1915, p. 33; abst. Arch. Pediat., 32:556-557, July, 1915.*

1915

"Until very recently we have taken it for granted that milk sugar was the best, but now many consider that malt sugar is even better. However, the malt sugar is not used in its pure state, but in the form of extracts, as dextrin-maltose."—*E. B. Lowry: Your Baby, Forbes & Co., Chicago, 1915, p. 162.*

1915

"Cane-sugar (saccharose), like most of the other disaccharids, is not absorbed as such, but must first be split by the invertase of the intestinal secretion into the two glucoses, dextrose and levulose, which are readily absorbable. Maltose (malt-sugar) occupies an exceptional position among the disaccharids, in being partly absorbable as such. This is probably due to the fact that it can be split not only by the maltase of the digestive juices, but also by the same ferment being present and active in the circulating blood (Chittenden and Mendel)."

"Anticipating a little, we may mention that all cases, in which lactose may advantageously be replaced by other carbohydrates, are pathological, and without exception the result of unsuccessful attempts at artificial feeding; they will therefore be discussed under that head."

"Dextrin, intermediate between sugar and starch, is physiologically nearer to the former; we shall have occasion to see that, under certain conditions, it may supplement sugar very advantageously. Given together with maltose, it materially delays the fermentation of the latter; Stolte observes that the more complex the carbohydrate the longer fermentation is postponed."

"All malted foods contain dextrin, and there is reason to believe that their value largely depends on their being somewhat complicated; such, at least, is the opinion of Usuki and Stolte, who believe that a mixture of carbohydrates is more slowly absorbed than a pure sugar, and therefore tends to check fermentation in the intestine. Southworth explains the matter more definitely, by attributing the antifermentative action entirely to the dextrin, which is not fermentable as such, but only after it has been split into maltose, a process that takes place only gradually, and in the later stages of digestion."

"I make it a rule to give the ordinary formula with dextrin-maltose whenever the usual milk or cane-sugar mixtures seem to cause excessive fermentation and colic, or are attended with the evacuation of soap stools. I decidedly prefer this, as a preliminary measure, to going over at once to some very low fat combination, which can only be a temporary makeshift at best. I also find dextrin-maltose an excellent addition to albumin-milk when the first object of that food has been achieved and a gain in weight is desired; in this way I have succeeded in feeding albumin-milk far beyond the period usually advised, with highly gratifying results."—*F. L. Wachenheim: Infant-Feeding; Its Principles and Practice, Lea & Febiger, Phila., 1915, pp. 31, 33, 146, 158.*

Continued down to 1934

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Proprietary Foods in Infant Feeding

GORDON WISWELL, M.D.

“PROPRIETARY” or “Patented Foods” advertised directly to the laity as suitable foods for feeding the baby have been in common use for a number of years, and the fact that a large number of infants are fed on these foods seems to be an indication for a discussion of their advantages and disadvantages. Foods advertised to the Medical Profession only are also proprietary preparations, but as they are not usually given by the parent without advice, there is not the same objection or danger in their use. It is the food used by the mother without consultation with a physician that is the pernicious factor in the feeding of infants, and the number of foods available is so great that if one disagrees another may be tried. There are forty to fifty varieties available on the English market, and an even greater number on the American list. A great deal of time and trouble is taken by the manufacturers to place these products in the hands of the mother. They have access to the birth records, and the baby is hardly born before the mother is deluged with attractive booklets and literature extolling the virtues of a food, under cover very often of a Baby Record Book, and what appears to be a simple and easy method of feeding the baby without the bother or expense of seeing a doctor. Attractive advertising is one reason for the widespread use of these foods. Another reason, unfortunately, is the fact that they appeal to a large number of physicians as an easy way to overcome the otherwise necessary problem of mastering the food question for the baby. The name of the food is all that is necessary. Mother and the “directions on the can” will do the rest. The apparent success of these foods in producing a contented, fat, obviously well baby is another reason for their use. Warning that a fat baby is not always a well baby is unheeded because the company says that their food is complete and safer than cow’s milk—and it is only after the baby has become ill after being on a variety of these foods for weeks or months, that the advice of the physician is sought.

These foods are as a class unnecessary, and there is nothing in them that cannot easily be incorporated if necessary in a home made modification of cow’s milk, and at far less cost. The infants that have done well on them would have done equally as well, if not better, on ordinary milk mixtures. They offer such wide variations in their composition, however, that it is not just to discard them all as useless, as there are undoubtedly some that can be used at times with advantage and success. It is important to make use of them, however, when a therapeutic indication is present, and never according to directions on the box, which is illogical and dangerous, as babies cannot be standardized to a pattern that will suit the formula on the can.

If a baby is to be fed intelligently, it is imperative for the physician to have a knowledge of the composition and uses of these foods, so that when one or other of them is under discussion, he can properly advise the mother, apart from the claims that the manufacturer makes through general advertising or particular pressure on the parents.

These foods may be first divided into two classes:—

1. Those that contain milk and are advertised as complete foods.
2. Those that are used only with fresh cow's milk to be added.

The first class may be subdivided as follows:—

A. Dried Milks, Unmodified. These are simply milk or skimmed milk evaporated by different processes to powder form without the addition of carbohydrate or starch or fat. Examples of these are Dryco, Klim and Meads Powdered Whole Milk. These are usually well tolerated by infants, and are convenient for use when good clean cow's milk cannot be obtained, for example, when travelling or during the summer month. Pathogenic organisms are destroyed. They are given in a strength of one ounce of powder to eight ounces of water depending on the age of the baby.

B. Dried Milks, Modified. These are prepared by a similar process of drying but have the normal content of cow's milk modified by the addition of fat or carbohydrate. Examples of these are Lactogen, S. M. A., Cow & Gate, Glaxo, Horlick's Malted Milk, Nestle's Food, Allenbury Foods, etc., in which all harmful pathogenic germs have been killed. In some, cane sugar is added, in others, partially or completely dextrinized flours. In malted milk the carbohydrate is composed of dextrans and maltose. In Nestle's Food cane sugar is added as well. Most of these foods contain over 50% sugar, with 5 to 10% of fat and an average of 12% protein. The fat is deficient in most of them, and sugar is used to offset this. With the protein and fat low, and the sugar high, these foods are very easy to digest and the babies become fat and comfortable, but if continued too long, ultimately pale and flabby and generally rachitic. The danger in their temporary use is that they may be used permanently by the mother; but although they may be useful in those conditions in which cow's milk does not lead to results, it is only wise to do so when an equal therapeutic effect under the circumstances cannot otherwise be obtained.

C. Condensed Milks. These are prepared by evaporating, approximately 60% of the water of fresh cow's milk and adding about 40% sugar. They are probably the most popular type of proprietary foods used. What has been said of the modified dried milks applies equally to this group. When diluted in a strength of one teaspoon to one ounce of water their percentage composition is approximately 2% protein, 2½% fat, and 12½% sugar, as compared with breast milk which gives 1½% protein, 3½% fat, and 6½% sugar. Evaporated milks, without sweetening, are not considered to be proprietary foods, but it may be mentioned that they are a useful form of food, modified as indicated, and used similarly to fresh cow's milk.

The second class of proprietary foods are those to which fresh cow's milk is added. These are represented by Mellin's Food, Mead's Dextrin Maltose, Eskay's Food, Robinson's Barley Flour, Imperial Granum, etc. Meads Dextrin Maltose is preferred, as it is not advertised to the laity. It contains dextrans and maltose in almost equal amounts, and in the three varieties varies only in the amount of sodium chloride and potassium bicarbonate they carry. The Barley Flours and Imperial Granum have no real advantage over ordinary simple wheat flour. Eskay's Food is an example of those foods containing both starch and sugar. They offer no advantage to the use of simple milk and cane sugar mixtures, together with an added starchy food, and all the objections of proprietary foods apply to them. There are numerous

other foods prepared as infant foods. Some have added fat, some are peptonized, others have added protein; others such as Protein Milk, Casec, Sobee, etc., are manufactured solely for use by the medical profession, and cannot be classed as true proprietary or patented infant foods.

In conclusion, the objections to the use of these foods in infant feeding are briefly these: 1, They are expensive. 2. They are unnecessary. 3. Milk is the real basis, and by the use of the word "food" this fact is overlooked. 4. They offer a system of feeding that eliminates individualization. 5. They are advertised directly to the laity, and to the mother. They leave the diagnosis and treatment of a very important problem in the hands of a mother and to the directions on the can. 6. The relationship of the ingredients cannot be varied, and when the quantity is increased the amount of sugar is always too high.

The practical and conscientious physician will employ one or other of these foods if he sees an indication for its use. He may wish to avail himself as a temporary measure of the therapeutic advantage of a condensed or evaporated milk, but he should never use any of them "according to the directions on the can."

The Use of Iodized Oil in Outlining the Bronchial Tree

GERALD ROSS BURNS, M.D.

SINCE the introduction of Pneumonography by means of Iodized oils some few years ago, there have been numerous reports from investigators. It would appear that it is a safe method to recommend in the investigation of lung conditions in which the outline of the Bronchial tree should be visualized in order to understand the underlying pathology. It is a procedure which need not be carried out by the nose and throat specialist. It more fittingly comes under the domain of the man practicing general medicine. Rightly so, too, because it is the latter who has explored the thorax by means of physical signs—and he is in a better position to co-relate the physical signs with the appearance of the bronchial tree after the entry of the oil.

Lipiodol is the name of the particular oil which we have been using. It represents a 40% solution of Iodine in Poppy Seed oil. When watched under the fluoroscope the oil can be seen to flow readily along the main bronchial and into the smaller bronchioles. By posturing the patient, the oil can be made to flow into any part of the bronchial tree which needs to be visualized. We have noted that forceful breathing and coughing cause the oil to be drawn into the terminal bronchioles and air vesicles—a fact which has been commented upon by several authors. This has been a disadvantage because it prevents the subsequent full expulsion of the oil after X-ray plates have been taken. A real disadvantage when it is understood that the oil may be retained in these areas for many months after its introduction. Not that the presence of the oil per se in the terminal bronchioles or air vesicles does any particular damage, but its presence there might, and does, cause confusion in subsequent interpretations of X-ray examination of the lung. To illustrate this point, we recently investigated a patient whom we believe, is the subject of Dry-Bronchiectasis. The X-ray films showed numerous areas of density in the left lower lobe which varied from pin points up to areas the size of beans. The picture was confusing because these densities might mean broncho-pneumonic patches, areas of fibrosis or metastatic deposits in the Lungs. On questioning the patient we found that he received Lipiodal injections nearly sixteen months previously.

This feature has taught us a lesson. We now endeavour to prevent forceful breathing and violent coughing and endeavour to empty the Bronchial tree by postural drainage immediately after the X-ray plates have been taken. The preliminary preparation of the patient is important also. The whole procedure is explained to the patient to ensure his confidence and full co-operation. A combination of codeine Gr. $\frac{1}{2}$ and Luminal Gr. $1\frac{1}{2}$ is also useful to prevent coughing and to allay any nervous tension. Cases which have considerable expectoration are drained by posture before commencing the injection and may be given Atropine Gr. 1/100.

The technique which we have followed is the Supra-Glottic method. The tonsils, pillars and posterior pharyngeal wall are swabbed or sprayed with 5% cocaine solution. When anaesthesia is complete we introduce one c.c. of 1% warmed cocaine solution into the larynx by means of a laryngeal syringe. The tip of the cannula being held just above the cords, its position being guided by a laryngeal mirror. The patient is now ready for the injection of the oil. He is postured according to the side of the lung and the area to be filled. The tip of the Lippiodal syringe is introduced just above the cords and the contents slowly injected. The patient is instructed to breathe quietly during the act. The oil should be warmed before injection because it flows better and is less liable to produce irritation.

There are other methods recommended. The circo-thyroid and trans tracheal routes are useful in children. But in cases where there is considerable purulent expectoration there is danger of causing infection either local to the stab wound or in the tissues of the neck—the infection coming from within outwards. Surgical emphysema and leakage of the lipiodol into the tissue planes have also been reported. An excellent method—which we have not used—is described by Lloyd and Perrault in which they introduce a catheter directly into the Bronchus. By this means they can actually follow the flow of the Lipiodol, under the fluroscope, as it fills the Bronchial tree. The introduction of Lipiodol by means of the Bronchoscope may also be carried out by one trained in the use of this instrument.

There are certain contra-indication to the use of Lipiodol. Patients who are very ill, weak and bedridden should not be subjected to the strain of the procedure. Active Pulmonary Tuberculosis and acute infective pulmonary conditions are strong contra-indications. The danger in these conditions results from the conveyance of organisms and infective material to healthy or other parts of the lungs. The bland oil pushing ahead or carrying the infection acts as a vehicle. Recent cases of Haemoptysis should not be subjected to Lipiodol injection for the same reason. It does not appear, however, that the time honored adage "Iodine contra—indicated in Tuberculosis" holds the same support, for Lipiodol can apparently be given without any risk in quiescent cases of Tuberculosis. Cases where there is a poor Oxygen reserve, for example, Pulmonary Emphysema, and Sclerosis, Heart Failure and long standing Bronchial Asthma are instances where there is a risk in Lipiodol injection. The flooding of the bronchial tree with the oil utilizes further any oxygen reserve and this sudden strain may cause acute heart failure. In passing, however, it is worthy to note that there are workers who are using small injections (5 c.c.) of Lipiodol into the Bronchial tree for Asthma and the results would seem to be fairly good.

In our small series of twelve cases which were injected with Lipiodol during the past four years, we have observed no clinical manifestation of iodine poisoning. We have had no rashes following the procedure, though perhaps a coryza and watering of the eyes might have been blamed on a "cold." What ever absorption of the Lipiodol that may take place certainly does through the gastro intestinal tract. In all patients, the stomach is also watched under the fluoroscope for any signs of the oil. In some few of the cases, we have given several glasses of luke warm Soda bicarbonate solution to be swallowed after the injection of the oil—and in most cases we have given one ounce of Epsom's Salts.

To summarize briefly, we possess in Lipiodol, a smooth, bland non-irritating opaque, vegetable oil, which, when injected into the Bronchial Tree, produces an accurate delineation of its various ramifications. In selected cases, there are apparently—so far as can be ascertained from present work—no untoward effects on the pulmonary tissue from its use. It is a simple procedure which can be carried out in any institution where there is a fluoroscope. It is superior to the use of the Bronchoscope because this instrument requires a skilled and expert operator and it does not visualize the smaller bronchioles and vesicles as does Lipiodol injection.

Its use in medicine is purely diagnostic, for there are few results to commend it as a therapeutic agent. There is one case, however, in our series, who was apparently benefited by the injection. This was the case of a female aged twenty-five, who was employed as a cook in a large institution. For three years she suffered from cough and expectoration. There were hardly any constitutional symptoms, the physical signs were those of a chronic bronchitis and were limited to the right side of her chest. The sputum was persistently negative for Tubercle Bacilli, and X-rays were practically negative. Twenty cubic centimeters of Lipiodol were injected into the right lower lobe and showed normal bronchi and bronchioles. She improved immediately after the injection and is now, one year after, without cough or expectoration. Whether this happy result followed Lipiodol injection or whether it followed an improvement in her surroundings—for we gave her advice about the proper ventilation of her kitchen—we do not know. There are some references in literature which support our contention that Lipiodol injection may benefit certain types of cases with chronic cough and expectoration, in whom there are no pathological changes in the Bronchial tree.

The use of Lipiodol is invaluable in cases of Bronchiectasis and Lung Abscess, not only to confirm and make a diagnosis of these conditions, but also to actually visualize the diseased areas. There are numerous patients with chronic cough and expectoration, who are not what may be termed invalids, who have no underlying heart or vascular disease, and who do not have tubercle bacilli in the sputum, and who are the subjects of Bronchiectasis. For this type of patient Lipiodol injection offers the means of diagnosis. Bronchial obstruction whether due to fibrous bands, foreign bodies, tumours or pressure from without furnishes ideal cases for Lipiodol. To those of us who are away from centers where there are skilled bronchoscopists, it offers a simple, safe method of investigation.

To conclude this article, I would like to cite a case from our series of Bronchial Obstruction which, though fatal, was instructive. The patient was a male aged 54 who came under observation in February, 1934. He had been ill since the previous Fall of what he called a "cold". He had considerable cough and expectoration—the latter was mostly frothy, in large quantities and frequently was blood tinged. He had several small haemoptyses. He was becoming uncomfortably dyspnoeic, even on the slightest exertion, had lost fifty pounds in weight and was becoming progressively weak. On physical examination, it was felt there was something obstructing the entry of air into his left lung. We injected the left lung with Lipiodol and watched under the fluoroscope but the oil would not enter the left bronchus—in spite of posturing the patient, but poured down the right side. He was then bronchoscoped by Dr. Cunningham, and he found the left bronchus occluded by a tumour mass. An attempt was made to do a Biopsy but because of the

oedema around the mass, and the bleeding produced, a suitable section was not obtained. The patient died in May, 1934—the diagnosis was primary Carcinoma of the left Bronchus.

- (1) Lloyd and Perrault; Pneumonography; American Journal of Surgery, Vol. XXIII, Number 3.
- (2) Amberson and Riggins; Lipiodol in Bronchography; American Journal of Roentgenology and Radium, Vol. XXX, Number 6.
- (3) Anderson. Some observations on the value of intratracheal injections of iodized oil for bronchial asthma. Journal Allergy, 1932, Number 4.

MEDICAL MEN FOR THINGS MEDICAL.

“The principle that medical men should be the ones to exercise control over medical service is almost axiomatic. Yet there is confusion of thought where there could be straight thinking if all the facts were brought out and faced.

“There are those who would virtually make the physician an employee of the state. They fail to recognize the utter incompatibility between the American political system and the methods of truly professional men.

“There are those who complain about the scarcity of physicians. Yet it is a fact that while England has one doctor for 1,490 persons, France one for 1,690, and Sweden one for 2,890, there is in the United States one physician for every 780 persons.

“There are those who denounce our hospitals on the score of high charges for service, but the truth is that the cost per day of a hospital room with meals and the day and night personal ministrations required by an invalid is usually less than a well person would pay for mere room and meals in a first-class hotel.

“There are those who would like to let down the bars to self-medication. Yet the fact is that during the last few generations the average span of human life has been extended ten years, chiefly through the discoveries of medical science.

“Physicians know these things. They spend years acquiring an education on the care and repair of the most marvelous mechanism on earth—the human body. But they would readily admit that this education does not qualify them for telling railroad executives how to solve transportation problems or impressarios how to stage an opera. The work of the world needs many kinds of specialized knowledge, but certain it is that each field of work will be best managed by those who know it best.”—From Mead Johnson & Company's announcement in *Hygeia*, August, 1934.

Cystocele, Rectocele and Prolapse of the Uterus, the result of injuries at Childbirth*

THEIR ANATOMY, RECOGNITION AND TREATMENT.

L. R. MEECH, M.D.

BEFORE considering the above conditions it would be well just to review the anatomy of the pelvic region concerned.

The pelvic organs are held in their normal position by the musculature of the pelvic floor and especially by the levator ani muscles. This muscular pelvic diaphragm closes off the pelvic outlet from below and serves to prevent a displacement of the pelvic genitalia, due to the influence of intra-abdominal pressure.

The levator ani muscles arise from the posterior surface of the os pubis and their fibres pass backwards lateral to the urethra, vagina, and rectum, to their insertion in the sacrum and coccyx. Fibres passing across between the urethra and vagina and the vagina and rectum constitute the pubo-urethralis, and pubo-vaginalis tissue respectively. The levator ani is according to Derby, one of the most variable muscles in the body. Congenital weakness or absence of these inter-communicating fibres, provides the predisposing condition in the development of vaginal hernia, in the event of severe strain or injury, as is liable to occur during pregnancy. In addition to this muscular apparatus, there is a second important structure, which also serves as a means of organ fixation, viz., the fascia endopelvina.

This fascia like connective tissue is a direct continuation of the fascia endo-abdominalis. It lines the true pelvis exactly as the fascia endo-abdominalis lines the abdominal cavity. This fascia covers the uterus, vagina, bladder and rectum. As it covers these structures it undergoes hypertrophy and thickening and is therefore most developed at these points. These visceral portions are known as the fascia visceralis. The pelvic organs are thus covered with a connective tissue stroma which acts as a support or scaffolding structure which helps to maintain positional stability.

The structure of this fascia is, to a large extent, dependant upon its functional requirements. For the most part it is thin and delicate, but undergoes hypertrophy and hyperplasia in those areas in which it functions as a true supportive structure. It is best developed in the weakest portion of the pelvic floor. This weak spot is at the genital hiatus, where the muscular pelvic diaphragm of the pelvic floor is deficient. The portion of this fascial sheath which covers the floor of the bladder is united with that portion which covers the anterior vaginal wall. Together they form a marked thickened and powerful layer of fascia known as the fascia vesico-vaginalis or vesicovaginal fascia. Similarly the fascia of the posterior vaginal wall unites with that of

*Read at the annual meeting of the Medical Society of Nova Scotia, at Yarmouth, N. S., July 4th, 1934.

the anterior rectal wall to form the fascia recto-vaginalis or rectovaginal fascia.

The uterine portion of the fascia endo-pelvina also acts as a supporting structure for the uterus. It radiates outwards from the uterus to the parametrial tissues, becoming hypertrophied at its junction with utero-sacral ligaments posteriorly, and the vesico-uterine ligaments anteriorly.

This explanation of the anatomical relations will serve as an understanding of the development and consequently the repair of cystocele, rectocele and prolapse of the uterus.

CYSTOCELE

Clinically it is essential to differentiate the simple ectopia of the vaginal wall, known as anterior colpocele, from the condition of true cystocele. True cystocele differs from colpocele as a loose fold of hypertrophied skin differs from ventral hernia.

The prolapsed vaginal wall is usually hypertrophied and rugous while the vaginal covering of a cystocele, especially when distended, is smooth and thin. Careful palpation will disclose the mobility of the simple vaginal protrusion on the firm subjacent vesical floor. In cystocele a catheter passed into the bladder can be directed so that the vesical end of the catheter may be felt in the prolapsed bladder where it protrudes through the vaginal outlet.

Anterior colpocele is curable by any of the standardized colporrhaphies that simply remove the excess vaginal wall and suture the edges together. Even in our present day text books, these two conditions are not differentiated—the term cystocele being generally applied to all protrusions of the anterior vaginal wall, regardless of the structures involved. Thus we find (Kelly and Nobles Gynecology) “anterior colporrhaphy or resection of the anterior vaginal wall is indicated for the cure of cystocele”; and again “anterior colporrhaphy is the only satisfactory treatment for cystocele”.

Cystocele develops following an injury to the vesico-vaginal fascia, most always due to the trauma of labour, and may be classed as a false, or a gynecological hernia, in that it has no peritoneal sac.

The difference in the pathological picture of a true hernia and a gynecological hernia is striking. True hernias are spoken of as anterior and posterior, depending upon whether the peritoneal sac which is present beneath the vaginal mucous membrane, dissects along the anterior or posterior vaginal wall. Under this classification the post-operative hernias, developing after vaginal hysterectomy, may be added. False hernias of the gynecological type have no peritoneal sac. When the protrusion is in the anterior wall of the vagina, it is called cystocele or colpocele. When the rectum bulges into the vagina, it is a rectocele, and when the uterus itself sinks to a lower level than normal, it is uterine prolapse.

Urethrocele and diverticula of the urethra, may be mistaken for cystocele.

The Treatment of cystocele is largely surgical and any gynecological text book will give a reliable method of repair for this defect.

Operations of ventro-suspension and ventro-fixation need only be mentioned to be condemned, or in combination with perineorrhaphy for prolapse and retroversion, when associated with cystocele. The defect in the anterior part of the pelvic diaphragm *must* be repaired or the cystocele will recur, and remember, it is the cystocele and not the prolapse which causes most of the symptoms in these cases, particularly in younger women. I

recall two cases in particular. These women had been operated on some time previous; a suspension of the uterus together with a perineorrhaphy had been done. On examination at this time they both presented marked cystoceles, with an elongated cervix almost presenting at the vulva. The cystocele in both cases had simply been hauled up. Symptoms were relieved for a time, but it was inevitable that the cystocele recur.

As urinary incontinence is sometimes one of the most distressing symptoms of cystocele, any operation for cystocele should pay particular attention to the urethra. A reconstruction of the urethral sphincter is probably the best way to overcome this incontinence.

As regards the operation itself, there are one or two points which might be worth keeping in mind. Do not remove too much vaginal wall, or your sutures may cut out and you may get a troublesome secondary hemorrhage. In separating the fascia from the vaginal wall, keep close to the wall and so save yourself a lot of troublesome oozing. Lastly, the success of the operation depends on the re-establishing of the vesico-vaginal fascia and the suturing of this fascia to the anterior surface of the uterus. If we have a real hernia the sac of the peritoneum must be taken care of before this is done.

RECTOCELE

When the recto-vaginal septum is injured the anterior rectal wall protrudes through the traumatized area into the vagina, producing a rectocele. When occurring near the vaginal vault, it is called a high rectocele. When the injury occurs near the vaginal outlet, it is called a low rectocele. Trauma affecting the integrity of the septum at the junction of the cervix allows for a protrusion of small intestine, through the cul-de-sac of Douglas, forming a true hernia or *enterocele*. It is important that we differentiate these two conditions in order that a satisfactory repair be done. In the case of rectocele, an ordinary perineoplasty which has as a basis the re-establishing of the recto-vaginal fascia and the approximating of the separated or torn levator ani, is quite sufficient. *In the case of enterocele*, the ordinary perineoplasty repair is inadequate. Here we have a true hernia and, as in all hernias, the sac must be taken care of as well as the point of egress of the hernia from the abdomen.

There are two accepted methods of treating this condition surgically. The first is by the vaginal route; the other is through the abdominal route. If the hernia is uncomplicated and there are not too many adhesions, the vaginal route is to be preferred. The abdominal route is best for the extreme types of enterocele. The vaginal operation consists of opening the pelvic floor up to the cervix, by a median incision; the vaginal wall is separated by sharp and blunt dissection from the anterior wall of the rectum, and laterally as far as the sacro-uterine ligaments, until the vault of the vagina is exposed and the peritoneal sac with its contents is seen. The sac thus exposed is picked up with forceps, opened, and its contents reduced. If the sac is long, it is resected and closed with a purse string suture of chromic gut; if the sac is broad and flat the excess tissue is cut away and the edges are sutured. In either case, the sacro-uterine ligaments are approximated in front of the obliterated pouch, and the perineum is repaired in the routine way. Probably one of the most satisfactory abdominal operations for this condition consists in obliterating the cul-de-sac of Douglas by a series of purse string sutures of chromic gut, placed in superimposed layers, starting at the bottom of the

pouch and terminating at the level of the sacro-uterine ligaments. The only danger in either method is the possibility of including the ureters in the sutures, so these structures should be identified before the placing of the sutures.

PROLAPSE OF THE UTERUS

Uterine prolapse, with the cystocele, urethrocele and rectocele so frequently associated with it, is fundamentally and essentially a hernia. Remember, every hernia, no matter where, or what its cause, is due to a fascial defect. While the fascial planes remain intact, a hernia cannot occur. Because the diagnosis of uterine prolapse is usually so obvious, the emphasis is put upon the fact of the hernia, upon the organ involved in the fall, rather than upon the fascial defect, without which the hernia could not occur. The suspensory apparatus of the uterus has been stressed out of all proportion to its real effectiveness. It plays a part of course, but the really important factor is the musculo-fascial framework in which the cervix and the lower third of the uterine body are embedded and which we call the pelvic diaphragm. As long as this framework remains intact, uterine prolapse cannot occur; the moment it is damaged, sooner or later uterine prolapse is bound to occur.

Congenital prolapse we will not discuss. In the acquired type, the injury although practically always a sequel of parturition, is not necessarily the result of instrumentation. Although it does frequently follow the injudicious use of forceps, especially their application before full dilation, it likewise frequently occurs when forceps have not been used, especially when the child is very large and the labour has been prolonged, tedious and difficult. In either case the same thing happens; the cervix is stripped away from its fascial attachments and there is a consequent weakening and alteration of all the fascial planes of the pelvis.

The injury favouring prolapse is usually a multiple one. The pelvic diaphragm is injured, the uterus drops back in retrodisplacement, the broad and utero-sacral ligaments become stretched, thus allowing the uterus to descend or herniate, carrying the bladder and rectum with it. Intra-abdominal pressure is responsible for the descent since it constantly exerts pressure on the uterus, forcing it downward like a wedge through the weakened opening. The prolapse may vary from a slight descent to a complete herniation of the entire uterus, bladder and rectum.

Perhaps no other condition with which a surgeon has to deal presents such a problem as to the exact treatment to be followed to secure a successful result.

The proper treatment for uterine prolapse is always surgical, but surgery is not always accepted; surgery is not always wise. In such a case a properly applied pessary solves the problem and gives a relief out of all proportion to the simplicity of the remedy.

From a surgical standpoint, many things have to be taken into consideration before the type of operation to be undertaken can be decided upon. The degree of the prolapse is of importance. In a general way, for operative purposes, we might classify prolapse as (1) incomplete—when the uterus and the vaginal walls do not extend beyond the vaginal orifice; (2) complete—when the uterus is nearly or completely without the vagina. The age of the patient is important. Is she in the child bearing age? Is she near or at the menopause? Is there a cystocele, rectocele, or both? Is the uterus small,

atrophic, or is it of normal size? Is there marked prolongation of the cervix? Are there fibroids, or are there adhesions binding the uterus? Is there a true hernia of the vault of the vagina?

All patients with uterine prolapse fall automatically into two great groups; young women in whom the preservation of function is a matter of importance, and older women, in whom the preservation of function is a matter of small importance or of no importance.

In younger women, when independent uterine disease does not exist, *only those measures* which correct the hernia, conserve function and permit of safe future pregnancies should be employed. The procedure to be followed here would be the correction of the fascial defect by the necessary plastic work in the vagina; correcting the cystocele, urethrocele, or both; amputating the cervix, if too long; electrocoagulation of the cervix if it is infected, or if there is an erosion present; repair of the rectocele or enterocele if present; and a perineoplasty repair. This will be followed by opening the abdomen and suspending the uterus, either by the Gilliam or the Baldy-Webster technique. Personally, I prefer the Baldy-Webster operation, and in addition, I always make sure to take up the slack in the uters-sacral ligaments. Here I would like to point out that the opening of the abdomen to suspend the uterus at the termination of considerable vaginal plastic work may convert a more or less minor operation to one of major proportions. Recently, I have been doing a purely vaginal operation in these cases. The operation known as the Halban operation has given excellent results in the few cases in which I have done it. The retroversion which is an essential feature in prolapse of the uterus, is taken care of in this operation by means of a high vesicofixation; the uterine corpus is brought out through the vesico-uterine peritoneum and retracted posteriorly as far as possible so that the bladder peritoneum may be grasped and brought down as far as possible; the highest point of bladder peritoneum is then fixed to the fundus of the uterus; further sutures are placed to fix the deeper portions of the bladder peritoneum to the anterior wall of the uterus as the uterus is gradually replaced.

The cervix is amputated if the uterus is more than eight centimeters in length and a triangular shaped piece is taken out of the posterior vaginal wall so that when the operation is completed, the cervix is drawn well posteriorly, and intra-abdominal pressure can no longer exert any influence on the posterior cervical wall.

Elderly women, or women passed the menopause, present a different problem. Here, function may be disregarded. In these women, a purely vaginal operation is to be preferred and is generally feasible.

Two chief types of operation are generally employed. The Wertheim-Watkins interposition operation which uses the uterus as a plug to close the hernial opening and as a shelf to support the prolapsed bladder; and the Mayo vaginal hysterectomy modification. The interposition or transposition operation is indicated only when the uterus is normal in size or only slightly hypertrophied and when the prolapse is of moderate degree. It is contra-indicated; if the uterus is small and atrophic; if the uterus is excessively hypertrophied, for although the transposed uterus may atrophy to some extent, very often the transposed enlarged organ is a cause of great discomfort to the patient; if the woman is still in the childbearing years, unless at the same time sterilization is done; and lastly, there is always the possibility of malignancy, so that a very careful examination of the uterus is essential before this operation is decided upon.

One important feature of the interposition operation is the fixation of the cervix high in the vaginal vault. If amputation of the cervix is necessary, the stump should be treated in the same manner. Also the anchoring of the fundus of the uterus closely under the pubic arch by at least four sutures, to prevent a possible prolapse of the fundus through the anterior wall of the vagina, is essential. It is needless to say that a perineorrhaphy is always necessary, the degree depending on the age of the patient, marital state, and the degree of laceration.

If the uterus is diseased or atrophied, or if the prolapse is extensive or complete a Mayo type of vaginal hysterectomy is indicated. Here, after the uterus is removed, the broad ligaments are approximated by suture and used as a support for the bladder. I feel that an essential feature here is that the upper ends of the approximated broad ligaments should be secured by suture to the sub-pubic fascia, so that there will be no space between the ligaments and the sub-pubic arch through which a cystocele may recur. The utero-sacral ligaments should be approximated by suture, and fixed above to the lower part of the broad ligaments, and below to the recto-vaginal fascia. The recto-vaginal fascia in turn is fixed to the anterior rectal wall as in the repair for enterocele, until the level of the pubo-rectalis portion of the levator muscle is reached. The operation is then completed in the usual way. Prolapse of the vault of the vagina has been the principal anatomical failure in the ordinary Mayo operation, but if the points as stressed above are carried out, failure of this type is not nearly so likely to occur.

In conclusion, the basis of success of any of these procedures lies in the *individualization* of every case, in a clear *perspective* of the *anatomy* of the *region involved*, and in the *adaptation* of the *procedure*, particularly of the *plastic procedure*, to the *pathological condition* which exists.

Historical Section

ROBERT KOCH

S. L. WALKER, M.D.

ALL through the annals of Medical History from Hippocrates to the present time, there have always been members of the medical profession whose names shine out above all others. Doubtless there are such men today that the next generation will place in this category although we could not venture to name them now. It can, however, be taken for granted that they will be leaders in science and discovery, and they will be noted chiefly for their great service to the world at large.

In this class we have no hesitation in naming two who have made the entire civilized world indebted to them for their great service to humanity, Lister and Robert Koch, and their names should be always remembered.

Not long since Dr. Lawrason Brown of Saranac Lake delivered the Herman Michal Biggs Memorial Lecture before the New York Academy of Medicine and we quote freely from this lecture as published in the *Bulletin* of that Society. This was a lecture by a continental medical authority on Tuberculosis, as part of a memorial lecture course *in memoriam* of one of America's ablest pathologists. There are a number of Doctors in Nova Scotia who were perhaps students with Dr. Biggs at Bellevue and others who profited by his instruction. Under these circumstances some review of Dr. Lawrason's lecture on Koch will be enjoyed by a number of the profession in Nova Scotia.

Robert Hermenn Heinrich Koch was born in Clausthal, Germany, in 1843, frugally reared, rather inefficiently educated at local gymnasiums, but able to enter the University of Goettingen, and finally studied medicine under Heule, Husse and Meissner. He graduated in 1866 (when he must have been 23 instead of 19 as Dr. Brown stated), interned at the General Hospital in Hamburg, then began private practice. Giving up an idea of becoming a ship's surgeon he married a boyhood sweetheart in 1867 and in 1868 his only child, a daughter, was born. In 1868 he seriously contemplated moving to America, where he had some brothers. But in 1869 he moved to Posen. In spite of his short sightedness he served in the Franco-Prussian war, and after that his practice increased. Dr. Brown gives the following picture of him and his start in scientific work:—

"Near-sighted, rather slender, full bearded, somewhat brusque, little given to society. A man of few words except to intimates, respected for his ability but hardly loved by his fellow citizens who saw little of him, (for he was the busiest physician in the village) he worked in his little laboratory, formed by curtaining off a portion of his private office. I doubt if the corner of any private office has ever meant so much to the suffering world. Here he placed a microtome, a hand-made incubator built by himself, and an old fashioned microscope. He was unable to buy a modern microscope; but his

good wife by scrimping and saving finally collected, no doubt in an old stein, a fund sufficient to make him a present on his birthday of a new microscope such as he desired."

Natural history was Koch's hobby and that was why he studied medicine. But the vast decimation of herds of cattle and sheep by anthrax at that time called for his entire leisure. In a letter to Ferdinand Cohn, then the greatest figure in bacteriology at this time, Koch desired to demonstrate the success of his work in anthrax. "I have for some time been at work on investigations of anthrax contagion. . . . After many vain attempts I have been successful in discovering the process of development of the *Bacillus Anthracis*. . . . Before I bring this into the open I respectfully appeal to you, esteemed Herr Professor, as the foremost authority on bacteria, to give me your judgment regarding this discovery."

As the result of this correspondence Cohn arranged for a demonstration at Breslau, April 30th, 1876, after which he said,—“It leaves nothing more to be proved; I regard it as the greatest discovery ever made with bacteria, and I believe that this is not the last time that this young Robert Koch will surprise and shame us by the brilliancy of his investigations.” Then after the successful demonstration “Koch hurried to Berlin to submit his findings to Virchow; but the great man received him coolly which naturally depressed Koch. *After half a century the facts remain as Koch presented them.*”

After a more or less unsatisfactory two years Koch went to Berlin in 1880 and began work with the Imperial Health Office. “In September, 1881, Koch made what is considered by many to be his greatest contribution to bacteriology, his poured-plate method of obtaining pure cultures from mixtures of germs, published in the contribution from the Imperial Health Office.”

“This publication marks the close of the first period of Koch's scientific work, at the beginning of which he found bacteriology in a chaotic condition, and, at the end, 1881, left it, due largely to his own efforts, a well organized science, based in part upon his four postulates for connecting etiologically any bacterium with a certain disease. Not only the broad principles, settling once for all time the germ theory of disease, but also the little details of technic, the knacks which change failure into success, were largely due to Koch's ingenuity. A master had arisen and bacteriology was now a Medical Science.”

To us to-day his name is most closely identified with the development of the war against tuberculosis. “All those who knew Koch intimately were aware that no subject interested him as much as tuberculosis, cholera, bubonic plague and other pestilences,” he said, “carried off their hundreds, even thousands, but tuberculosis claimed as victims in all civilized countries its tenths. . . . In fact he was so impressed with the importance of tuberculosis that throughout his life, even to the very end, he let no opportunity escape to work upon this problem.” His definite work on tuberculosis began in the summer of 1881, and by March, 1882, he presented his data and conclusions to the Berlin Physiological Society. Virchow, who had more than once combatted the opinions of Koch was one who listened to this devastating attack on prevailing opinions, but he had no criticism to offer. Later Ehrlich said, “that evening remains graven in my memory as the most majestic scientific event in which I have ever participated.” As to what this discovery of the tuberculosis bacillus actually accomplished is thus summarized by Koch in his “Communications” in 1884, He says:—

“The discovery of the tubercle bacillus merely proves the correctness of the contention of Cohnheim that tuberculosis is an infectious disease which

has until now been doubted by the majority of physicians. . . It furnishes us also with a new diagnostic sign; in the future the diagnosis in doubtful cases will be determined by the presence of the tubercle bacille in the lesions. To a large extent it does so today and the increase of this method will support my belief in the etiological rule of the bacillus. Lastly we may earnestly hope that the discovery will aid in the treatment of the disease. As far as our observations go, we can expect little, if anything, from the action of chemical agents upon the bacilli in the living body, and we must turn our main efforts to prophylaxis. This means, on the one hand, effective disinfection of tuberculosis material, and on the other hand the protection of healthy individuals from contact with the bacilli.

"It seems to me none too early to insist on active prophylactic measures against tuberculosis. But considering the enormous extent of the disease we must, in all steps which we take to combat it, reckon with social conditions and consider just how far we may proceed in the right direction, if interferences and various disturbances and disadvantages are not to curtail the benefits."

It is not surprising after quoting this that Dr. Brown adds,—"*So ends a masterpiece of medical literature. One of the most remarkable things in medical history is how little of moment has been added to our knowledge of this tubercle bacillus since the appearance of this contribution.*"

It is not surprising that following Von Behring's discovery of antitoxin for diphtheria that many efforts were made to find an antitoxin for tuberculosis, but there was failure everywhere. But at a Congress of Medicine held in Berlin in 1890 Koch announced the discovery of a substance which hindered the growth of tubercle bacilli. Then followed the rush for tuberculin. Here Koch met his greatest opposition yet medical men from all over the world came to Berlin to see this remedy tested. Prices almost fabulous were offered for small quantities of the preparation. It is generally thought that Koch made his announcement regarding tuberculin prematurely to say the least; it is certain that his work during the last 20 years of his life did not have the finished conclusive proof of practicality. This was partly because he was so intent upon making his researches of practical benefit to mankind that he hurried to conclusions. In this connection we learn of Von Pirquet's use of tuberculin hypodermically as an aid to diagnosis.

With all the stress of research, teaching, etc. Koch had his domestic troubles. He was so absorbed in his work that his home life was negligible. "Rumor has it that when Koch was deeply interested in a problem he lost all idea of time and possibly of place. He would miss one or two meals a day, and in deep thought would wander past his home." Not even the daughter of a Lutheran clergyman could stand this, and after 26 years of married life they were divorced." At no time, however, had he and his family been received socially in Berlin. Frau Koch went and lived till his (Koch's) death in 1913 at their first home in the town of Clausthal. Two months after his divorce Koch married a former actress 29 years his junior. "The marriage coming so soon after the divorce displeased the Government, while some of his closest relatives refused to speak to him and the indignant citizens of Clausthal tore down the tablet."...This latter refers to a tablet they had erected in his home upon his discovery of the tubercle bacillus....

During the last 15 years of his life he made many trips to foreign lands studying the chief infectious diseases of each. In 1908 he started his last trip going first to visit relatives in Chicago. While in Japan he was instructed by the Kaizer to attend the Washington Congress on Tuberculosis in September.

He abandoned his trip and returned to Washington, "where he arrived in a hot temper". One feature of this Congress was Koch's renewed statement that human and bovine tuberculosis were entirely the same, and it appears he was 99% correct. Yet he vigorously advocated methods of control of the bovine type.

Koch developed four great trends of work in tuberculosis. (1) The nature of the tubercle bacillus. (2) The nature of the action of tuberculin. (3) The nature of allergy in its relation to immunity. (4) The possibility of protective vaccination against tuberculosis. None of these did he finish and still today we have the same problems. May we not then conclude that apart from his activity in all forms of preventive medicine his claim to immortality rests upon his discovery of the tubercle bacillus?

Of the closing of his career Dr. Brown says:—"By 1909 he had long had an irregularity of the heart; but he never spared himself and was apparently hale and hearty full of bodily and intellectual vigor. Of a serene and quiet old age he could not dream. His hair was getting lighter, his beard grey, his back slightly bent, but his carriage erect. On the evening of April 9th, 1913, following an attack of influenza, but also after a day of energetic work at the Institute, he had a severe attack of angina pectoris, which recurred in a milder form ten days later. Friedrich Krans diagnosed myocarditis and gave a serious prognosis. With great exertion he visited his daughter about the middle of May and both thought it would be the last time they would see each other. Then he became a bit more cheerful, and a few days later on the 21st of May went for a change to Baden Baden. On the 27th at the suggestion of his wife, he dressed and while sitting on the balcony, facing a glorious sunset, fitting for the departure of such a spirit, his chin dropped upon his chest and gently, without a struggle, he fell into the last long sleep that awaits us all, spared the sad consciousness of prolonged bodily and intellectual decay. In silence, in the presence of his wife, his daughter, and one or two intimate friends his body was cremated, and his ashes now rest in a niche behind a marble tablet in the Robert Koch Institute for Infectious Diseases, from whence forever his great work goes forth to serve and to save mankind."

Pablum—Mead's Pre-Cooked Cereal.

Mead Johnson & Co. are now marketing Mead's Cereal in dried pre-cooked form, ready to serve, under the name of Pablum. This product combines all of the outstanding mineral and vitamin advantages of Mead's Cereal with great ease of preparation.

All the mother has to do to prepare Pablum is to measure the prescribed amount directly into the baby's cereal bowl and add previously boiled milk, water, or milk-and-water, stirring with a fork. It may be served hot or cold and for older children and adults cream, salt and sugar may be added as desired.

Mothers will co-operate with physicians better in the feeding of their babies because Pablum is so easy to prepare. It gives them the extra hour's rest in the morning and saves bending their backs over a hot kitchen stove in Summer. Please send for samples to Mead Johnson & Company, Evansville, Indiana.

Minutes of the Annual Business Meeting

(Continued from September Issue)

CONTINUATION of the 81st Annual Meeting of the Medical Society of Nova Scotia was held at the Y. M. C. A. Auditorium, Yarmouth, N. S. on July 4th, 1934, at 9.45 p. m.

The meeting was called to order by the President, Dr. T. A. Lebbetter.

Dr. Grant read the minutes of the Executive meeting of July 3rd, and it was moved by Dr. Corston that the items be taken up clause by clause. Carried.

Hattie Memorial Fund. After a short discussion it was moved by Dr. Lebbetter and seconded by Dr. Colwell that this section of the report be received and adopted. Carried.

Auditor for the Society. The President gave an explanation of the reason why an auditor had not been engaged, and as Dr. Atlee had given notice of motion regarding an auditor, no further action is required.

Offices. It was moved and seconded that the Society send a letter to the President and Board of Governors of Dalhousie thanking them for the use of two rooms at the Dalhousie Public Health Clinic for offices. Carried.

Reports of Committees. The reports of the various Committees had already been received and acted upon.

Dr. Walker's Letter. It was moved and seconded that the item be accepted as read. Carried.

Dr. Morrison's Resignation. This had been dealt with by the Executive.

As each clause of the Executive minutes had been explained the Secretary, Dr. Grant, then read his report.

The Annual Report of the General Secretary for the year ending June 30th, 1934.

1. *Members.* The active membership for the year 1933-34 is 209, the honorary membership 18, making a total of 227. The figures for the previous year were: active membership 210, honorary 17, total 227.

Collections were made in the customary manner, that is by drafts sent out by the Royal Bank of Canada on February 15th. In addition efforts were made to collect past dues. On November 21st the President, Dr. T. A. Lebbetter, sent a letter to all those in arrears asking them to settle their accounts. This was followed by a second letter from the President which appeared in the January number of the BULLETIN. Your Secretary also sent out numerous dunning letters. The efforts to collect past dues were not successful. In looking over this year's list of unpaid members it is apparent

that there are at least forty physicians, otherwise in good financial standing, who have paid no attention to our drafts or letters. One of our members paid \$5.00 on his draft and refused to pay more.

No recommendations for honorary membership have been received by your secretary this year.

2. *The Bulletin.* You will receive a report from the Editorial Board of The BULLETIN, also a statement from the Treasurer on its financial standing. Without overlapping to any great extent either report a few remarks concerning The BULLETIN are in order.

A comparison of the cost of issuing the BULLETIN, that is, printing, postage, cost of cuts, etc., with cash received from advertising, a few subscriptions and extra numbers sold, showed that this year the BULLETIN paid for itself with a few dollars over. Most of the firms renewed their advertisement and several new ones were obtained.

The impressions your Secretary received of the BULLETIN from talking to members in various parts of the province were on the whole favourable. The policy of the Editorial Board of inviting Branch Societies to issue different editions of the BULLETIN was, I believe, a sound one. It encourages men from all parts of the province to contribute their experiences, and thus makes the BULLETIN truly represent the Society as a whole. The Laboratory Section, contributed by Dr. Ralph P. Smith, Provincial Pathologist, is to be commended.

The Executive and members of the Society are indebted to the Editorial Board for their untiring efforts in maintaining the high standard of the BULLETIN throughout the year.

3. *Change of offices.* In September the offices of the Society were moved from the Roy Building to the Dalhousie Public Health Clinic. Through the courtesy of the President and the Board of Governors of Dalhousie University we now occupy two rooms in the Public Health Clinic, rent free. The moving of the offices means a yearly saving to the Society of \$330.00 for rent. In addition we are now exempt from City taxes, and there is no necessity for a telephone. As the office furniture previously used by the Society belonged to the past Secretary, it was necessary to purchase a new equipment. This involved an expense of slightly over \$100.00.

4. *Obituary.* An accurate record has been kept of the deaths of members of our Society, also relatives of members. The deaths occurring for the year were as follows. (The members stood while the following names were being read).

Edmund James Johnstone, M.D., Bellevue Hospital, Medical College, 1882, Sydney, N. S. Dr. Johnstone was a member of the staff of the two city hospitals, a member and past-President of the Cape Breton Medical Society, also an honorary member of the Nova Scotia Medical Society, and a member of the Canadian Medical Association.

Clyde Straughn Hennigar, M.D., C.M., Dalhousie 1909, Liverpool, N. S. Dr. Hennigar was born at Chester, December 14th, 1883, graduated from Dalhousie, where he had the honour of being the Gold Medallist of his class.

James William Reid, M.D., C.M., Halifax Medical College, 1884, died at Windsor, N. S., October 30th. Dr. Reid was born in Musquodoboit, May 30th, 1859, graduated in 1884, and first practised in Elmsdale, going to Windsor two years later. He was an honorary member of our Society.

John Stewart, C.B.E., M.B., C.M., Edin, LL.D., McGill, Edin., Dal., F.R.C.S., Edin., Professor of Surgery Dalhousie Medical College, 1912-1932, Dean of the Faculty of Medicine, 1919-1932, died at Halifax, December 26th, 1933. Dr. Stewart was born at St. George's Channel, Cape Breton, on July 3rd, 1848, studied in Halifax, afterwards at Edinburgh where he graduated in 1877 with honors. He settled in Pictou in 1879 where he practised for fifteen years. In 1894 he moved to Halifax. He was President of the Provincial Medical Board 1906-1916; President of the Canadian Medical Association in 1905, and twice President of the Medical Society of Nova Scotia. For many years he was a member of the Dominion Council and its President in 1925. He was an Honorary Member of our Society.

John Archibald McLean, M.D., C.M., Dalhousie University, 1924, died at Halifax on December 4, at the age of thirty-seven. Dr. MacLean had a large medical practise in Glace Bay.

Andrew Arthur Dechman, M.D., C.M., Dalhousie University 1924, was born in Sherbrooke, N. S., in 1862, and died at Bridgetown, N. S. on April 20th. Before locating in Bridgetown Dr. Dechman practised in Musquodoboit, Montana and Wedgeport.

Sebastian Paul Young, M.D., C.M., Dalhousie University, 1925, died in New Germany at the age of thirty-seven. Dr. Young was born in Newfoundland, had a brilliant college career and was Gold Medallist in the class of 1925. He practised in New Germany for eight years, going there on his graduation.

Silas Arthur Fulton, M.D., C.M., Dalhousie University, 1902, died in Truro on July 1st, at the age of fifty-seven. Dr. Fulton was born in Truro, and practised there from the time of his graduation until his death. Dr. Fulton was a charter member of the Medical Staff of the Colchester County Hospital and also of the Canadian Medical Association.

5. *The Canadian Medical Association.* There have been numerous communications with the Canadian Medical Association during the year. The two most important topics covered were Medical Relief and an appeal to the Sun Life Assurance Company of Canada to renew their grant for the expenses incurred by post-graduate lecturers. On September 30th a wire was received from Dr. Routley, Secretary of the Canadian Medical Association, inviting the Society to send a representative to join a Canadian delegation to discuss the matter of relief with the Rt. Hon. Mr. Bennett. After referring to the minutes of the last meeting the invitation was declined. At the request of Dr. Routley, the Branch Societies were circularized asking them to express their opinions on the value of post-graduate lectures previously financed through the Sun Life Assurance Company.

6. *Branch Societies.* Most of the Branch Societies do not notify the BULLETIN of their activities. Your Secretary visited three of these Societies during the year, Cape Breton, the Valley Society, and the Western Nova Scotia Medical Society to make arrangements about local editions of the BULLETIN.

7. *The Annual Meeting.* Arrangements of the annual meeting were made by the Halifax members of the Executive sitting with the President. A tentative programme was sent to all other members of the Executive asking them for their comments. No final action was taken until sufficient time had elapsed to hear from all. The Canadian Medical Association offered

to send two men to our annual meeting provided we could arrange the time to suit them. This offer, however, was not received early enough, and consequently they had to be declined.

Your President, Dr. Lebbetter deserves great credit for the active interest he has taken in Society matters during his year in office. He has spared neither time nor money to help improve the finances of the Society. Also it has been through his own personal effort that the excellent scientific programme has been arranged for this meeting.

The Society is also indebted to the members of the Western Nova Scotia Medical Society for the excellent arrangements made for the entertainment of themselves and their families during their stay at Yarmouth. The following firms have contributed toward the entertainment and amusement at our meeting.

John Wyeth & Brother, Inc., Walkerville, Ont.	\$10.00
E. B. Shuttleworth Chemical Co., Toronto	10.00
National-Canadian Drugs Limited, Halifax	10.00
Abbott Laboratories, Montreal	10.00
Mead Johnson & Co. of Canada, Ltd., Belleville	10.00
Mr. A. W. Medd, Montreal	10.00
Ingram & Bell, Ltd., Toronto	10.00
J. F. Hartz & Co., Ltd., Toronto	10.00
Reed & Carnrick (Canada) Ltd., Toronto	5.00
Moir's Limited, Halifax	Chocolates
Imperial Publishing Co. Ltd., Halifax	Fountain Pen
Phinney's Music Co. Ltd., Halifax	Club Spacer
Parke, Davis & Co., Walkerville, Ontario	Favours
A. Wander Ltd., Peterborough, Ontario	Favours

The clerical secretary, Mrs. M. G. Currie, has rendered faithful and untiring service. She has been most valuable in the matter of proof reading, the securing of advertisements and the arrangements with the printer. I would recommend, that if the finances of the Society warrant it, in addition to her salary she be given a bonus of One Hundred Dollars for the coming year.

Respectfully submitted,

(Sgd.) H. G. GRANT.

It was moved by Dr. Williamson and seconded by Dr. Colwell that this report be adopted. Carried. Meeting adjourned.

Continuation of the 81st Annual Meeting of the Medical Society of Nova Scotia was held at the Y. M. C. A. Auditorium, Yarmouth, N. S. on July 5th, 1934, at 12.30 p. m.

The meeting was called to order by the President, Dr. T. A. Lebbetter.

Following the reading of the Presidential Address the report of the Nominating Committee was presented as follows:

President—Dr. Daniel McNeil, Glace Bay.

1st Vice-President—Dr. G. A. Dunn, Pictou.

2nd Vice-President—Dr. P. E. Belliveau, Meteghan.

Secretary and Business Manager—Dr. H. G. Grant, Halifax.

Treasurer—Dr. W. L. Muir, Halifax.

Executive Committee—The Executive Committee shall consist of the above named officers together with such other members as shall have been nominated to that office by the various Branch Societies always provided that such members are in good standing in this Society.

The Committee on the Cogswell Library—Dr. J. R. Corston, Dr. N. H. Gosse, Dr. C. W. Holland, Dr. W. L. Muir, Dr. G. H. Murphy, all of Halifax.

The Committee on Arrangements—shall consist of such members as shall be appointed by the Cape Breton Medical Society.

Council C. M. A.—Dr. C. E. A. deWitt, Wolfville; Dr. Daniel Murray, Tatamagouche; Dr. G. H. Murphy and Dr. H. G. Grant, Halifax.

Narcotic Drugs—Dr. D. W. Archibald, Sydney Mines; Dr. Alan Morton and Dr. M. J. Carney, Halifax.

Legislative Committee—Dr. C. E. Kinley and Dr. J. G. MacDougall, Halifax.

Editorial Board Committee—Dr. N. H. Gosse, Dr. H. B. Atlee and Dr. C. W. Holland, Halifax, and the Secretaries of Branch Societies.

Cancer Committee—Dr. N. H. Gosse and Dr. S. R. Johnston—Halifax, and such other members as the Society may wish to appoint (as we had no information as to number on the Committee).

Auditor—As there was no such Committee mentioned in the official list published in the BULLETIN, we did not see fit to add this Committee.

The Committee on Public Health—Dr. M. G. Burris, Dartmouth; Dr. D. S. McCurdy, Truro; Dr. D. A. Campbell, Bridgewater; Dr. L. M. Morton, Yarmouth; Dr. D. W. Archibald, Sydney Mines.

Board of Management for N. S. Society for Cripple Children—Dr. L. R. Morse, Lawrencetown; Dr. Daniel Murray, Tatamagouche; Dr. A. Calder, Glace Bay.

Historical Medicine—Dr. H. L. Scammell, Dr. M. D. Morrison, Dr. G. H. Murphy, Halifax; Dr. M. E. McGarry, Margaree Forks; Dr. W. J. Egan, Sydney; Dr. H. B. Atlee, Halifax; Dr. J. A. Sponagle, Middleton.

Workmen's Compensation Board—Dr. J. G. B. Lynch, Sydney; Dr. V. O. Mader, Dr. F. R. Little, and Dr. A. McD. Morton, Halifax.

There being no other business the meeting adjourned.

CANCER

THE EARLY DIAGNOSIS AND TREATMENT OF CANCER OF THE BREAST

W. ALAN CURRY, M.D., F.R.C.S. (Eng. and Canada).

THE breast is second only to the uterus in its frequency of being involved by cancer. About 40 per cent. of all cancers in the female occur in the breast. It is a disease of the involuting breast, being commonest at the time of the menopause and rare before the age of thirty-five. It may, however, be met with at any time after the twentieth year, and some slow forms may last for five, ten or even fifteen years. Of the true tumours of the breast 95 per cent. fall into two groups, fibro-adenoma and carcinoma. The former constitutes 15 per cent. and the latter 80 per cent. Every tumour of the breast should be regarded as malignant until it has been proven to be innocent and the only way to make certain is to make an exploratory incision and judge either from the gross or from the microscopic appearance.

Etiology.

The causation of Cancer of the breast, as elsewhere, is not definitely known. Approximately one per cent. of carcinoma of the breast occurs in the male. The marked disproportion between the incidence of carcinoma in the male breast and that in the female is of interest. Its rare occurrence in the male breast and its frequency in the female points strongly to a physiological factor in carcinoma in the gland. The old belief that carcinoma of the breast is decidedly more common in married women has been demonstrated to be a statistical fallacy. Lane-Clayton carried out a careful investigation for the British Ministry of Health and has shown that amongst married women carcinoma is more common in the less fertile, and it can hardly be doubted that the absence of physiological function must be of etiological importance in unmarried women. Many German investigators agree that the fewer times a woman gives birth to children the more chances she has of developing mammary carcinoma. carcinoma of the cervix uteri is just the opposite, as only three per cent. occurs in nullipara.

Trauma is frequently associated in the mind of a patient with the subsequent appearance of a lump in the breast. Careful inquiry frequently elicits the great uncertainty that exists as to whether the breast was struck at all, or whether the carcinoma occurred at the actual site of the part injured. There is no definite proof that trauma bears any etiological relationship to cancer of the breast. If mechanical injury was the cause of cancer, it would be expected that almost every breast would become carcinomatous. The jars and movements of a breast in the ordinary course of a woman's daily life submit the glands to constant, intermittent trauma.

The relationship of chronic mastitis to carcinoma is still a much debated point. It has never been proven pathologically that chronic mastitis can be converted into a carcinomatous process. Chronic Mastitis is so common that it would be remarkable if it were not occasionally associated with carcinoma. It must be admitted that such distinguished observers as Ewing and Sir Lenthal Cheatele are strongly of the belief that chronic mastitis is a pre-cancerous condition. On the other hand, Bloodgood has published a recent paper in which he has followed up carefully 350 cases of chronic mastitis. He studied microscopically the entire breast in 222 cases in which it was removed. In not a single instance did he find microscopic evidence of cancer. He summarizes his conclusions by stating that the development of cancer in the breast, after the removal of a section of the breast, the seat of chronic mastitis, is not any more frequent than the normal incidence of cancer in the same number of women, at the same age, who had not been operated upon: three out of 128 cases, about two per cent.

Pathology.

It is the custom to recognize several varieties of breast carcinoma to which the names scirrhus, medullary and Adeno-carcinoma have been applied. It must be realized that two or even three of these may occur in the same breast. One section may show a scirrhus condition while another a few centimeters away may exhibit a medullary carcinoma. This is one of the chief fallacies of Broder's classification of malignancy. Since the scirrhus form of carcinoma is by far the most common, its characteristics will be described.

The breast is small, hard and flattened. The tumour is firmly adherent to the surrounding tissue and sends radiating processes out into the fat. When incised it cuts with the peculiar gritty sensation of an unripe pear. The cut surface is of a greyish color, contrasting with the dense white encapsulated fibro-adenoma and the yellow tinge of chronic mastitis. It is not homogenous but dotted here and there with pale yellow dots and streaks. These represent cells undergoing fatty degeneration. On scraping the surface a milky fluid is obtained to which the name "Cancer Juice" has been given. The cut surface is slightly concave, retracting below the general level of the breast. Contrast this with fibro-adenoma which bulges forward.

In chronic mastitis, the surface does not change on section and cysts may be present. We would emphasize the great importance of the naked eye appearance of breast tumours. Many surgeons, such as Halsted and Bloodgood, trust entirely to this method and do not have recourse to a rapid frozen section. In every doubtful case the breast should be carefully examined at the beginning of the operation. If carcinoma is found, the cut surface is treated with pure carbolic followed by alcohol, gloves and instruments changed, and the radical operation proceeded with.

A knowledge of the methods of spread is essential to the physician and surgeon because no operation is of avail unless it removes not only the primary growth but the whole lymphatic area, with the regional lymph nodes. Sampson-Handley must be given credit for pointing out that the chief lymphatic spread is in the deep fascia which lies over the pectoral muscles and the epigastric area. His theory of lymphatic permeation, i.e., actual growth of the malignant cells in the lymph current, has fallen into discredit. Fitzwilliam in an interesting article in the British Journal of Surgery attacked this theory.

He pointed out that lymphatic permeation does not hold good for cancer in other parts of the body. It is generally agreed that lymphatic spread is much commoner by embolism, i.e. carried along in the lymph stream. Stiles has shown that the lower and inner margin of the breast is only one inch from the interspace between the ensiform cartilage and the seventh costal cartilage. In this region the lymphatic plexus in the epigastric aponeurosis is only separated from the subperitoneal lymphatics by the linea alba. It is not surprising that through this weak spot cancer cells from the breast frequently reach the peritoneum, where they set up secondary growths by gravity and resulting embolic infection of the glands which drain that area. It is important to remember that the earliest metastases in the abdomen may be felt in the pelvis, by a vaginal or rectal examination. The liver is involved by lymphatics along the falciform ligament which empty into the portal glands. The frequency of metastases in certain bones, e.g., upper end of the femur, humerus, ribs, vertebrae, sternum, must also be remembered.

Symptoms and Signs.

Directly the disease has reached such a stage that it gives rise to the earliest clinical signs, it has, unfortunately, become a gross pathological lesion, however small it may be. The earliest biological changes are invisible and the earliest histological changes produce no clinical signs. Certain factors influence the time at which the earliest clinical signs can be detected. Clinical signs are obscured in fat breasts and more quickly observable in thin breasts. It can not be too strongly emphasized that glandular enlargement is not characteristic of the early and operable stage and its absence should never be accepted as a sign of diagnostic value. Most of the clinical signs such as fixation to the deep fascia and retraction of the nipple are due to the fibrosis and lymphatic permeation and are, therefore, not present in the early stages. If the lesion is superficial its extension to the surface occurs earlier and produces visible and palpable evidence of its presence. A rapidly growing tumour produces earlier clinical signs than one less malignant, by involving the surrounding tissues more quickly. A slowly growing tumour may extend insidiously for a long time before it produces signs that attract the attention of the patient.

The patient should be examined in the reclining position. A pillow is placed behind the back of the chest, which renders the breast prominent and exposes the axillary region for examination. The breasts should also be examined in a sitting position. They should be transilluminated in a dark room. This is a valuable method of differentiating between the solid and cystic swelling. A Cameron light is very useful for carrying out this test.

On inspection, the size and contour of the breast should be compared with the opposite one. The nipple should be carefully inspected to note whether it is retracted, drawn upwards, shows a discharge or any eczematous change in the surrounding skin. The condition of the skin is examined for any change, such as lymphatic oedema (peau d'orange). Palpation should be carried out with the flat of the hand. Any lump that is felt should be examined in a systematic manner; its size and contour noted; consistency, whether solid or fluid. The overlying skin should be gently picked up to determine if there is any attachment. This is a valuable sign of malignancy. The one exception to it is that a lump behind the nipple, whether benign or

malignant will be superficially attached, because of its relationship to the numerous ducts which open into the nipple. Fixation into the pectoral fascia is tested by asking the patient to press on her hip. This puts the pectoral muscle into contraction. Try the mobility of the lump in two directions, laterally and in the direction of the pectoral fibres. Then compare the mobility whilst the pectoral muscle is relaxed. Early fixation to the pectoral fascia will be detected by this method.

If the patient gives a history of discharge from the nipple, the breast should be gently compressed in order to express some of the fluid for microscopic examination. Deaver states that bleeding from the nipple in the presence of a tumour usually means malignancy. Bloodgood and Cheatle disagree with this view. In their extensive experience it nearly always indicates a somewhat rare benign tumour known as a cystic papilloma.

The axillary glands should be carefully palpated. Early malignant glands are hard and painless. Palpation should extend to below the pectoral margin and in the region of the subscapularis. The supraclavicular region and the opposite axilla should also be carefully palpated. Particular attention should be paid to the bones if the patient complains of regional pain and particularly if the disease is advanced. X-ray examination should be carried out for evidence of metastatic deposits. This is the earliest method of detecting secondary deposits in the lungs. The abdomen should be examined, the liver palpated for evidence of enlargement and nodules. A rectal or vaginal examination should be invariably carried out on account of the liability of metastatic deposits to occur in the Pouch of Douglas.

Pain is the only subjective symptom of mammary carcinoma. It is true of malignancy of the breast and elsewhere, that by the time pain appears there is practically a hopeless prognosis. The common history is that the patient discovers the lump accidentally whilst washing herself. She is apt to regard it as harmless on account of the absence of pain. It is imperative that the public should be encouraged to consult their physicians immediately after the lump is discovered and not wait until pain appears. This invariably means metastatic deposits and a certain death.

Diagnosis.

The first fact to establish is whether the condition under diagnosis is a tumour or an inflammatory swelling. The margin of a tumour is abrupt and defined. The margin of an inflammatory swelling is diffuse and shelving. If the infection is acute there will be constitutional disturbances, fever, increase in pulse rate and a leucocytosis. The next point is to determine whether the tumor or inflammatory swelling is fluid or solid. If the tumour be fluid and translucent on transillumination, it is a cyst or cystic degeneration of a previously existing solid tumour. The fluid of an inflammatory swelling is pus. The next step to decide is whether the tumour is benign or malignant. When carcinoma exists the tumour is stony hard. This consistency is not approached by any other tumour of the breast. The surface is nodular, except in duct carcinoma, in which it may be smooth and round. The margins are hard and abrupt, and becoming fixed to the surrounding tissues, breast, skin, nipple and pectoralis major. How early these structures are involved depends upon the situation of the tumour and its rapidity of growth. A benign tumour is freely movable in the breast, not attached to the skin, unless it is situated

beneath the nipple. The largest tumours are usually duct carcinoma. The size of a tumour has no relationship to its malignancy or to the diagnosis of carcinoma. The smallest tumours are usually the most malignant and the largest less so.

Differential Diagnosis.

The conditions which most closely simulate breast cancer are: (1) Chronic Mastitis, (2) Fibro-Adenoma, situated in an area of Chronic Mastitis, (3) Gumma, (4) Tuberculosis, (5) deep cyst, especially if surrounded by an area of Chronic Mastitis, (6) Fat Necrosis.

Chronic Mastitis presents a finely granular induration. It is only vaguely felt with the flat of the hand. The induration is sector shaped, mapping out one or more lobes of the breast. The indurated areas are tender and often the seat of pain. They are not attached to skin or pectoral fascia. The nipple is not retracted. Axillary glands are only slightly enlarged, and are tender. The diagnosis is complicated by the fact that a carcinoma may arise in an area of chronic mastitis. A local lump in a sector shaped area of granular induration may be a cyst, fibro-adenoma or an early carcinoma. Transillumination will help considerably in diagnosing a cyst. A single or fixed lump imperatively demands explanation.

Gummatous and tuberculous mastitis in their early stages simulate chronic mastitis. They later produce one or more indurated lumps in the breast. Adhesion to the skin and fascia may occur, and orange skin may be present. In tuberculosis, the axillary glands are usually enlarged. At this stage the resemblance to carcinoma is very close. Later softening occurs, the skin becomes bluish and finally multiple sinuses form, discharging pus. These cases should be explored early and a definite microscopic diagnosis made. No harm is done if the mass is not cut into and excised widely, including healthy breast tissue. Cysts are encountered most commonly in association with chronic mastitis. They may be single or multiple. They are hard and tense, not attached to the skin or pectoral fascia. Transillumination enables a definite diagnosis to be made if the cyst fluid is clear. Galactocele is a rare cyst, which forms during lactation. It is situated beneath the nipple. Gentle pressure forces out milky fluid from the nipple. Rarely a fibro-adenoma and carcinoma may become cystic from degeneration.

Fat necrosis is an occasional cause of a tumour in the breast, which is mistaken for carcinoma. In about half the cases a definite trauma precedes its formation. It makes its appearance as a painless lump which is adherent to the skin. The clinical signs are those of carcinoma. The safest method of making a definite diagnosis is to make a wide excision, thoroughly washing out the wound with a 1-1000 bichloride of mercury solution, in order to destroy any epithelial cells which may have been liberated, in the event of the mass proving to be malignant. The gross appearance of fat necrosis shows the affected area to be whitish in appearance and may exhibit one or more cysts containing liquefied fat. The area is more or less encapsulated and does not show any infiltration.

Prognosis.

The average duration of life as shown by a recent report to the British Ministry of Health is three years. Patients who had been subjected to an early operation before involvement of the axillary glands give 75 per cent

of three years cure, 60 per cent. at the end of five years and 45 per cent. at the end of ten years. These figures are from a recent follow-up of 1850 cases from the Mayo Clinic. When the axillary glands become involved, only 40 per cent. are alive at the end of three years. No better proof can be given of the necessity of making an early diagnosis of cancer of the breast, especially before the axillary glands are palpable.

Treatment.

There are three methods to select from: (1) Surgical method only; (2) Radiation only; (3) A combination of both.

Surgery is contraindicated if the growth is attached to the ribs or sternum, when the supraclavicular glands are involved, when the axillary glands are much enlarged, hard and fixed to the axillary vessels, when the cancer occurs in a young pregnant woman, when there are deposits in the skin (cancer en cuirasse), in the presence of metastases in the lungs or bones. I am strongly of the opinion that operations performed in advanced malignancy of the breast leave the patient much worse off. Recurrence promptly occurs in the region of the incision and life is shortened.

I believe that in the operable stage, a combination of surgery with deep X-ray therapy pre- and post-operatively, give the best prospect of a cure. The essential principle of the radical operation is to remove the breast and its lymphatic distribution en bloc. The breast tumour and not the nipple should be made the central point of the elliptical or circular incision. The incision should be prolonged downwards to the epigastric region and upwards and outwards over the pectoral fold. A wide area of deep fascia with the pectoral muscles and axillary glands should be removed.

Radiation (X-ray and radium) plays a very important part in the treatment of inoperable cases. It is astonishing to watch metastases in the skin melt away during a few weeks. Many advanced ulcerating growths will shrink and heal under skillfully applied radiation. It may be asked why should not radium be used for the treatment of an early case. It is admitted that it will cure the local malignancy, but who can say that axillary glands are not involved microscopically although they may not be palpable. In a fat patient it is difficult to palpate the axilla. The great drawback to radium is that it can not be satisfactorily applied to the lymphatic and gland area. In the axilla it would be dangerous to thrust radium needles into the glands which are in such close proximity to the large axillary vessels, and besides an intractable neuritis may follow.

Conclusions.

The cure of cancer of the breast rests upon close co-operation between the surgeon and the practitioner. Any woman with a lump in her breast over thirty-five years of age should be considered to have cancer until it is proven otherwise. Do not wait until the diagnosis is assured by the presence of fixation to the skin and pectoral fascia. The presence of enlarged axillary glands almost seals the fate of the patient. Probably 90 per cent. of patients could be cured by an early diagnosis and radical operation. Remember that nobody can definitely diagnose with certainty an early cancer of the breast. Make your preparations for a wide excision of the lump, to be followed at once by a radical operation if the gross appearance is characteristic. In some

cases you may have a frozen section or wait a few days for a more accurate report from a paraffin section. The public should be educated to report to their physicians on the first discovery of a lump and be warned of the danger of waiting for pain to appear. Any abnormal discharge from the nipple is a danger signal. The time may come when radiation will replace surgery, but it is not here at present. We welcome radiation as a strong ally to surgery and also that many cases should be treated entirely by radiation. This is best determined by close co-operation between the surgeon and the radiologist. We have a Cancer Clinic at the Victoria General Hospital which is doing splendid educational work as well as diagnosis and treatment. It is unfortunately true that the majority of our cases are seen too late for curative measures to be of avail. Their lives can be prolonged and made more comfortable mentally. The general practitioner is the backbone of the profession and we look to him to diagnose cancer of the breast early or send his cases of suspicious malignancy to a group clinic, where special facilities and co-operation will do much to alter the opinion of the public that cancer is almost a hopeless disease.

MADAME MARIE CURIE.

Madame Marie Curie, one of the world's most renowned scientists, died on July 4, 1934, at Sallanches, France, at the age of sixty-six years. Her death was due to pernicious anaemia, in all probability resulting from long exposure to radium. By her discovery of the elements radium and polonium in 1898 she undoubtedly made the greatest contribution to medicine since the time of Louis Pasteur. It is doubtful if any scientific achievement has ever attracted so much popular attention or has been of such world-wide benefit to mankind as her discovery of radium and its subsequent application to medicine.

In 1903, Madame Curie and her husband, Pierre Curie, received the Nobel Prize for physics, and in 1911, Madame Curie received it for chemistry—the first person ever to receive it twice. In 1903, the Curies together received the Davy Medal of the Royal Society. Innumerable honours have been conferred upon the distinguished scientist, whose entire life was characterized by a quiet and intense devotion to her laboratory work. In 1919 a gram of radium was presented to Madame Curie by the grateful people of the United States and in 1929 she received from them the money with which to purchase an additional gram.

At the time of her death she was head of the research department of the Radium Institute established by the University of Paris. Madame Curie's name will live as one who enriched the field of science and who added a weapon of immense effectiveness and value to the field of cancer therapy. To the thousands of cancer patients who have been benefited by radium, she will be immortalized as a true benefactor of mankind.

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MEDICAL EDUCATION.

ANOTHER University year has started and in medical schools throughout Canada and the United States ambitious groups of students have begun the long grind which culminates in permission to practise the art of medicine on their fellow beings. The subject "Medical Education", therefore, is quite timely.

What constitutes the ideal course of training for medical students? The curriculum varies greatly in different parts of the world, chiefly in the sequence in which subjects are presented. In France, for instance, the student begins clinical medicine in the first year. He attends clinics in Surgery, Medicine, Gynaecology and other subjects at the same time he receives instruction in the medical sciences. In Germany the idea of research permeates the whole course, although the student does not come into such immediate contact with patients as elsewhere. In a few schools in the United States the course has become less rigid; several electives are allowed and more responsibility is placed on the student. In Great Britain the aim is to make teaching as practical as possible, and emphasis is placed on the clinical rather than the scientific side of medicine. The system of clinical clerkships is still followed, in which the student acts as clerk in the different departments of the hospital during his course of study. The Canadian schools follow quite closely the American system of teaching.

Not so many years ago the "medical course" consisted of a few years of apprenticeship to an older physician—a system comparable to the training of plumbers and mechanics to-day—and for that period the training was adequate. Since then there has been a gradual evolution until to-day we have a more or less standardized pre-medical and medical course in most American and Canadian colleges. From the educational standpoint this rigidity of curriculum has been severely criticized. The accusations are that it destroys initiative and thwarts intelligence. Perhaps this is so. It must be remembered, however, that medical education differs from education in general. At least an elementary knowledge of physics is necessary to appreciate the X-ray, Radium, the microscope; chemistry is the basis of prescribing, of metabolism, and the new knowledge of dietetics; biology, especially comparative anatomy, constitutes an excellent background to the study of the human body.

Can we think of surgery without a thorough knowledge of anatomy; medicine without physiology; accurate diagnosis without pathology and bacteriology, or rational treatment without training in materia medica or pharmacology? And so it seems there is justification for a certain rigidity of curriculum.

But there are other things to consider. How much of the student's time should be spent in mastering the so-called medical sciences, and how much in clinical instruction? To answer this we must consider the purpose of the training. If the medical school has in mind the training of research workers emphasis must be made on the medical sciences. If, however, it aims to turn out general practitioners, men who are capable of handling the usual emergencies of general practice, then much of the time must be spent in clinical instruction. The "interne year" which has been adopted by many schools on this continent clearly indicates the trend toward increasing the time in clinical instruction.

In considering medical and pre-medical courses as given by most Canadian and American schools there are a few points which deserve comment. Most of our examiners complain that the medical students do not express themselves in simple or intelligent English. Whether this is due to insufficient training or whether it is because the English language is naturally difficult I cannot say.

The criticism is raised that in the pre-medical course Physics, Chemistry and Biology are taught purely as scientific subjects, and that it is left to the student to work out for himself their application to medicine. This is over-estimating the intelligence of the average student. Occasional conferences between the teachers of purely scientific subjects and the members of the clinical staff would tend to overcome this defect. The teachers of the medical sciences are subject to the same criticism levelled at the teachers of the pure sciences. It is held that anatomy is taught as anatomy, and that sufficient time is not spent, nor proper emphasis given to those parts of the human anatomy subject to surgical interference. There is often too great a gap between the physiologist, the biochemist, the pharmacologist, and the hospital. There should be no line of demarcation between the medical sciences and clinical teaching. The anatomist should be well acquainted with the problem of the surgeon; the junior surgeons should serve as assistants in the teaching of anatomy. The physiologist, the biochemist, and the pharmacologist should be in close touch with the hospital, preferably attached to the staff. The advantages of such a relationship are only too obvious.

Until quite recently the training in Psychiatry at most medical schools was insufficient. Instruction was confined to the definite psychoses and little attention was paid to the border-line cases. Psychology was not required as a medical subject, and its application to medicine was little understood. When we consider that about 50% of hospital beds are for mental cases the necessity of a knowledge of psychology and proper training in psychiatry is quite evident. How many of us who at some time have not been at our wits end trying to think of some remedy to help the "nervous patient".

One common criticism of medical teaching is that the student to-day depends too much on the accessory aids to diagnosis—the X-ray, blood tests, bacteriological examinations. This is probably true, and yet it is not the fault of the teachers. The pathologist, the bacteriologist, the radiologist, are all quite frank in defining the limit of usefulness of their own specialty as an aid to diagnosis. It is perhaps natural for the student to prefer these.

short cuts to diagnosis, but this must be sedulously guarded against. Careful history taking, keen observation, the ability to reason, and to draw sound deductions will always be necessary to accurate diagnosis and good treatment.

The trend of Medicine should be carefully watched so that the student may graduate equipped to cope with present day conditions. Medical practice has changed greatly in the past twenty years. Industrial development, good roads—improved and increased hospital facilities—and greater interest in preventive medicine, have all contributed to that change. The graduate of today should know something of industrial medicine, if only the hazards of industry. He should be well acquainted with hospital practice and preferably should know something of hospital administration. The expansion of public health departments and increased interest in disease prevention calls for additional study. The student must be taught to look on disease not as something affecting the individual alone, but as something of vital interest to the town or city in which he lives, to the province and to the Dominion as a whole. He must know the arithmetic of disease—the economic aspect—the usual manner of spread and the various techniques which have been developed to lessen unnecessary disease. There can be no hope for steady progress in public health matters unless the students graduate thoroughly conversant with the possibilities of preventive medicine.

Finally, there is another phase of medical education, by no means of least importance which should be mentioned; and that is the cost. Gradually the course has been lengthened and with it the fees have increased. Not that the university makes money by teaching medical students; the facts are to the contrary. For every dollar paid in fees it costs the universities from two to three. The length of the course, and the increased costs tend to keep from our Medical Schools perhaps the most desirable type of student—the sons of country people of modest circumstances. There is no immediate solution for this. Perhaps in the not too distant future we shall have scholarships available for this purpose and thus allow us to pick the men who should enter the noble profession. The Medical Schools should be vitally interested in the type of men it allows to begin the study of Medicine.

H. G. G.

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LABORATORY

LABORATORY EXAMINATIONS: Their indications, method, and interpretation with special reference to the requirements of the general practitioner.

By RALPH P. SMITH, M.D., D.P.H., Provincial Pathological Laboratory, Halifax, N. S.

Albumen Determination:

1. By means of Heat. Place in a test tube a small number of c.cs. of urine and incline the tube at an angle, boiling the upper layer. For this a small flame should be used.

Turbidity is due to the presence of either albumen or earthy phosphates and if on the addition of acetic acid (2 drops) the turbidity still remains *albumen is present*. If on the other hand, the cloudiness disappears after the addition of acetic acid there is no albumen present, but merely earthy phosphates.

2. Robert's Reagent. Take several ccs. of urine in a test-tube. Introduce a pipette containing an equal quantity of Robert's Reagent, to the bottom of test-tub, and withdraw gradually, allowing the Reagent to run into bottom of tube. If Albumen is present, a white ring will form at the junction of the two fluids. Reagent. Pure Nitric Acid, 1 part. Sat. aqueous solution of Magnesium Sulphate, 5 parts.
3. By the Sulphosalicylic Acid Test. Urine cloudy from urates or phosphates does not interfere with the test. They clear upon adding the sulphosalicylic acid. Bacteria or much epithelium will in themselves produce an opalescence. One can either filter such specimens or use a control test adding to the 2.5 c.c. of urine, water instead of sulphosalicylic acid. To 2.5 cc. of urine in the special tube add 3 per cent. sulphosalicylic acid to the 10 cc. mark. Invert the tube to mix. Over 0.02 per cent. albumen produces a white cloud immediately. It becomes more intense on standing for a few minutes. Large amounts of albumen given an opaque white cloud. For quantitative estimation allow to stand ten minutes and compare the turbidity with the permanent turbidity standards. Record the value of the standard most closely matched, as the albumen content of the urine. Seven standards are used, equivalent to 0.01 per cent. 0.02 per cent., 0.03 per cent., 0.04 per cent., 0.05 per cent., 0.075 per cent. and 0.1 per cent. of albumen. In case the specimen contains more than 0.1 per cent. it may be diluted 1 in 10 and redetermined. By multiplying the value then found by 10 the result is obtained. Standards

The material for this article is chiefly culled from the following text books: *Laboratory Medicine* by Nicholson; *Clinical Diagnosis by Laboratory Methods* by Tood & Sandford; *Surgical Pathology* by Boyd. The tests have been selected by the writer, and are those found useful in his own Laboratory.

obtained from Kinsbury-Clark type, manufactured by the Fales Chemical Company, Inc., Cornwall Landing, New York.

Interpretation:—Albumen is a finding that requires further investigation. If it be due to blood, suspect in the following order: nephritis, a calculus, a neoplasm or tuberculous kidney. If nephritis be a cause casts will be present. One should then determine the renal function and investigate whether heart failure be a cause. Albumen may be due to febrile disease and usually disappears when the fever does. Anaemias and other blood diseases may be a cause. Albumen in the young may be functional. If so, it is diminished or disappears on rest in bed.

In adults where there is an organic lesion of the kidney the largest amounts of albumen are due to tubular degenerations of the kidney. There is no elevation of blood-pressure and the prognosis is usually good. Toxemias of pregnancy with albuminuria and no increase in the blood urea is of the eclamptic type rather than nephritis. Little or no albumen may be present in arterio-sclerotic kidney producing vascular hypertension and a marked degree of nitrogenous retention. The water tests and the blood urea will indicate the seriousness of the lesion in such cases. A constant albuminuria is of more serious significance than an intermittent one.

Albuminuria is of serious significance when associated with increased arterial tension, albuminuric retinitis or when granular casts and red blood cells are in the urine. The history of the case will determine the nature of the disease.

The functional tests are frequently normal when albumen and even casts are present in the urine. Man has more than twice as much kidney tissue as he requires and nephritis must first destroy all the reserve structure before it will interfere with the patient's sense of well-being or show a diminished kidney function by tests or renal efficiency.

The tendency of nephritis is progressive, sometimes very slowly other times more rapidly and the connective-tissue growth in the healing process destroys the functioning glomeruli and tubules so that in time all the reserve kidney substance is destroyed and the amount needed when the body is at rest is encroached upon. Functional tests will now show impaired renal efficiency.

The significance of albumen and casts in the urine pointing to a progressive lesion of the kidney is borne out by statistics which show insurable persons having constantly a faint trace of albumen at the age of 40 years or over have a death rate from nephritis which is ten times the normal; with a small amount of albumen (0.01, to 0.02 per cent.), the death-rate from nephritis is about thirty times the normal; with large amounts of albumen (0.1 to 0.2 per cent.) and casts the death rate from nephritis is about fifty times the normal. The average life expectancy of such a case which should be normally 27.4 more years, is only twelve years.

Deposit:—This shows the gross quantity of the various sediments. *Microscopic urine analysis.*

A drop of sediment covered with a cover glass should be examined first, under low power and then under high power with the light cut down by partially closing the diaphragm.

The important findings are pus, blood, casts.

Pus cells are almost twice as large as red blood cells and have granular centres, red cells have a shiny surface with a bluish green tint when fresh and may have a crenated outline. They lose this colour on standing in urin.

Do not confuse casts with cyclindroids, mucus thread or fibres of cotton. A cast should have two parallel sides, be at least 3 times as long as it is broad and have two rounded ends. Neither end should taper as do cyclindroids. Scratches on glass have many striations otherwise they may resemble casts. In searching for casts use a very subdued light by partially closing the diaphragm. Their outline is best seen by moving the focus of the microscope while searching for them. In this way the hyaline casts will not be missed. It is important to note the degree of granularity of casts. In pyelonephritis, casts are frequently covered with pus cells and in acute disease with red blood cells. Usually several varieties are seen but there will be one main type. It is important to distinguish the very broad granular and epithelial casts which form in the larger collecting tubules. These casts are of serious import. Casts are usually found where there is albumen of renal origin. Most casts have a homogeneous or granular matrix to which may adhere pus, blood or epithelial cells. Cyclindroids and mucus when small in amount are normal and of no diagnostic significance. The cyclindroids come from the renal tubules and the mucus strands are discharged from mucous glands at the juncture of the urethra and bladder.

When epithelium, mucus and a small amount of pus are present in the urinary sediment the specimen is usually from a female and the cells are from the cervix uteri rather than from the urinary system. Apart from this, epithelial cells have no diagnostic significance.

Crystals and various precipitates are of little diagnostic importance. They occur in urines of high specific gravity when they have stood for a time, especially during the cold weather. Because they are frequently seen, they are briefly described. Amorphous sediment usually consists of 1. urates, which occur only in acid urines and dissolve on heating, 2. phosphates usually white in colour and in alkaline urines; their precipitate is augmented by heat but dissolves on adding acid. 3. Carbonates dissolve on adding acid with the evolution of carbon dioxide gas.

Casts:—Casts are usually found where there is albumen of renal origin. They are an expression of injury on the part of the cell lining the renal tubules. Casts may be present in the urine when only a small portion of one kidney is inflamed. Hence one cannot always form an opinion regarding the severity of a nephritis from examination of the urinary sediment. Certain points are of value however. Hyaline casts occur temporarily in health especially after a severe physical exertion. Their constant presence signifies kidney damage. The process is more severe when granular and epithelial casts are present. Large numbers of coarsely granular casts indicate a more diffuse inflammatory process which is of serious import. Blood casts occur in acute disease and pus casts with infective pyelonephritis. The very broad, coarsely granular type are called renal failures casts and when present in large numbers indicate a marked degree of renal failure with elevation in the blood urea over 100 mgm. per 100 c.c. They come from the larger collecting urinary tubules.

Department of the Public Health

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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 sent for examination to the Pathological Laboratory, from September 1st to October 1st, 1934.

The number of tissues sectioned is 198. In addition to this, 14 tissues from two autopsies were sectioned, making 212 tissues in all.

Tumours, malignant	25
Tumours, simple	18
Tumours, suspicious	2
Other conditions	153
Awaiting Section	0
Tissues from two autopsies	14

**Communicable Diseases Reported by the Medical Health
Officers for the month of September, 1934.**

County	Chicken Pox	Diphtheria	Infantile Paralysis	Influenza	Measles	Typhoid	Pneumonia	Scarlet Fever	Tbc. Pulmonary	V. D. G.	V. D. S.	Whooping Cough	German Measles	Scabies	Pink Eye	Tbc. other forms	Septic Sore Throat	Enteritis	Erysipelas	Goitre	TOTAL	
	Annapolis																					
Antigonish													1									3
Cape Breton						1		2														3
Colchester								12				2										14
Cumberland					6			4			1											11
Digby								1	2													3
Guysboro				3					2													5
Halifax City	2	3						9				6										20
Halifax								1	1				1									3
Hants																						
Inverness																						
Kings												2										2
Lunenburg								2														2
Pictou																						
Queens																						
Richmond				25																		25
Shelburne																						
Victoria																						
Yarmouth	2	1				2			2													7
TOTAL	4	4	28	6	3	30	4	4	1	10	2	2	2	2	2	2	2	2	2	2	2	96

RETURNS VITAL STATISTICS FOR AUGUST, 1934.

County	Births		Marriages	Deaths		Stillbirths
	M	F		M	F	
Annapolis	15	16	12	9	11	0
Antigonish	12	10	5	4	10	0
Cape Breton	85	74	85	41	50	5
Colchester	26	25	19	5	11	3
Cumberland	30	36	25	20	18	4
Digby	33	31	5	7	9	0
Guysboro	14	7	6	6	10	0
Halifax	82	79	74	59	34	4
Hants	10	13	20	9	7	0
Inverness	14	26	6	15	9	0
Kings	21	25	22	6	10	0
Lunenburg	28	38	19	16	20	1
Pictou	27	40	15	13	13	2
Queens	5	5	7	2	2	0
Richmond	12	1	2	9	6	1
Shelburne	10	15	8	9	6	1
Victoria	5	5	7	7	5	0
Yarmouth	20	17	29	14	14	0
TOTAL	449	463	366	251	245	21

OBITUARY

The death occurred on Friday, August 31st, at her home in Brickton, Annapolis County, following many years of failing health of Lavinia Fraser McPhee, M.D. The late Dr. McPhee was born sixty-five years ago at Upper South River, Antigonish County, the daughter of Archibald and Ann McPhee. She graduated from the University of Manitoba and practised for several years in Vancouver and also in Iowa, specializing in nervous diseases. In 1907 she was married to Alexander Green of Winnipeg. For the last seven years Dr. McPhee resided in Brickton. Dr. McPhee is survived by two sisters and two brothers, Mrs. E. C. Hart, wife of Dr. Hart of Victoria, B. C.; Mrs. Harriett Stevenson of Brickton; Dugald McPhee of Vancouver and James McPhee, at present on his way home from South Africa.

The BULLETIN extends its sympathy to Dr. Ira Sutherland of Annapolis Royal in the loss of his wife who was drowned while fishing in Matthew's Lake on September 18th. Mrs. Sutherland was before her marriage Miss Bonnell of Saint John, N. B., a graduate of the General Hospital in that city, and was married in 1926.



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Personal Interest Notes

MEDICAL Practice for Sale. The BULLETIN has received a letter from Dr. Wm. R. Quinn of Ilderton, Ontario, stating that he wishes to dispose of his practice.

Dr. and Mrs. M. J. Macaulay, Sydney, have returned from a motor trip including New York, Boston, and Montreal.

Dr. Jean Whittier commissioned as medical Missionary for India. Dr. Jean Whittier, native of Rawdon, graduate of Colchester Academy and Dalhousie University, and for three years resident physician of the Maritime Home for Girls, Truro, was commissioned a medical missionary of the United Church to Central India, at an impressive and well attended service in First United Church, Truro, on August 30th, 1934. Rev. A. J. MacDonald, Milford, chairman of Truro Presbytery, conducted the service.

Compulsory Insurance on health advocated. At the tenth Annual Maritime conference of the Catholic Hospitals' Association held at Halifax on September 4th, the question of compulsory group health insurance was thoroughly discussed. At the afternoon session Dr. G. H. Agnew, speaking on "Group Health Insurance", declared twenty-four leading countries of the world now had compulsory health insurance. This indicated the definite trend in that direction but he declared that before such a system was adopted in Canada, definite safeguards should be adopted to prevent difficulties occurring elsewhere. Dr. G. H. Murphy, Halifax, in discussing the same subject stressed the preventive side of medicine, and foresaw the need of group health insurance to provide means of carrying out a programme with respect to this side of medicine.

Dr. and Mrs. S. W. Williamson of Yarmouth have returned from a pleasant trip to Providence, R. I.

Dr. W. L. Harris, son of Dr. and Mrs. W. C. Harris, Barton, Digby County, who has been visiting his parents for two months has returned to Montreal to take an internship in the Montreal General Hospital for a year.

Dr. Harvey D. Hebb, a graduate of Dalhousie, left recently for London, England, where he will take a post-graduate course.

Dr. A. R. Reid of Windsor has arrived back from New York where he had been visiting the hospitals and enjoying the hospitality of friends and relatives.

Dr. J. E. LeBlanc receives the Jacques Cartier Memorial Gold Medal. At West Pubnico in the first week of September Dr. J. E. LeBlanc of that town was greatly honoured by having presented to him one of the special Jacques Cartier Memorial Gold Medals in recognition of the work and



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efforts of the Doctor in promoting a higher standing of education, both in literature and science, among the Acadians. Count Robert de Caix, who represented the Government of France on this occasion, had not divulged the nature of his visit, and Dr. LeBlanc was taken by surprise, but he was equal to the task and made an impressive acknowledgment of the gift and thanked the Government of France for the honour conferred upon him for his humble efforts in education.

We believe that Dr. LeBlanc is the only one in Nova Scotia to have been honoured by the Government of France with one of these memorial medals. Dr. LeBlanc is one of the most widely-known Acadians of the Maritime Provinces, due to educational work amongst the Acadians. He is, himself, a deep student, not only in what pertains to his profession, but also in history and science.

Dr. B. F. Miller of New Waterford has completed a special course of study at the Lahey Clinic in Boston, Mass. During his absence Dr. J. A. MacDonald of Halifax took care of his practice.

Dr. and Mrs. H. A. Creighton of Lunenburg are spending ten days vacation on a motor trip through the province.

Dr. and Mrs. M. R. Young of Pictou have lately spent a three weeks vacation visiting relatives in Grand Manan, N. B. and Halifax, N. S.

Dr. Donald Campbell, graduate of Dalhousie in Medicine and also in Science, and who has spent three years in post-graduate work at the Charity Hospital, Cleveland, Ohio, has located at Sydney.

Dr. A. W. Miller of New Waterford, has recently had to undergo a minor operation at St. Joseph's Hospital, Glace Bay.

New Disease identified in the Province. At the Dalhousie Refresher Course identification of the disease, Tularaemia, in our province was announced. The discovery was made by Dr. H. G. Grant, Dr. A. L. McLean, Provincial Epidemiologist, working in co-operation with Dr. J. A. Macdonald of St. Peters. The case occurred three years ago in one of the Indians on the Reservation near. Dr. Grant gave a short resumé of Tularaemia at the meeting.

Dr. W. J. Barton of Halifax returned the end of September on the "Lady Hawkins" from a trip to the West Indies and British Guiana.

Dr. G. A. MacIntosh, Superintendent of the Victoria General Hospital, Halifax, visited in New York and Philadelphia during September.

Dr. and Mrs. B. S. Bishop of Kentville have returned from a motor trip extending over 2,600 miles, which included many points of interest. They motored through New Brunswick, across the Matapedia Valley, visiting Quebec and Montreal and Ontario, leaving their son at Kingston, where he is a student at Queens University. They then visited Toronto, Niagara Falls, Revere Beach, Boston, Newport, Calais, Me., and other places, taking the

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boat at Saint John for home. The entire trip was keenly enjoyed, with perfect weather and good roads.

Dr. R. A. MacLellan of Rawdon wins defamation action against Cleric. On September 18th a verdict of \$50.00 damages was awarded by the jury before Mr. Justice Mellish in the Supreme Court at Windsor to Dr. R. A. MacLellan of Rawdon in a suit against the Rev. Frederick Sommer, pastor of the Church of Christ, West Gore, asking \$5,000 for libel.

The wedding took place on September 18th, in the First Presbyterian Church, Columbiana, Ohio, of Miss Mary I. Strubel, daughter of Rev. and Mrs. John C. Strubel, to Dr. Arthur Middlemas Marshall, son of Mr. and Mrs. G. R. Marshall of Halifax. Following the Ceremony, Dr. and Mrs. Marshall left by motor for a trip to Upper Canada. They have returned to Halifax where Dr. Marshall has resumed practice.

Dr. and Mrs. A. B. Campbell of Bear River have recently returned from a trip to Boston.

On September 14th Dr. J. W. T. Patton of Truro gave an interesting address before the Rotary Club of that town. The Doctor spoke of his boyhood days, his life on the farm, the milking of cows, the cutting of hay, and all the other labours which he was required to do. He eulogized the work of the late Dr. A. H. MacKay, Superintendent of Education, and spoke in high terms of the thorough training he had received in the public schools of Nova Scotia.

At Milford, on August 18th, the marriage was solemnized of Miss Dorothy Margaret, daughter of the Rev. A. J. and Mrs. McDonald and Dr. Clarence B. Crummey of Ship Harbour, the ceremony being performed by the bride's father. Dr. and Mrs. Crummey left for Melneerby Beach, Pictou County for a few days, and are now residing at Ship Harbour.

An enjoyable dinner and bridge was held at the home of Dr. and Mrs. A. B. Campbell of Bear River on August 28th in honour of Dr. L. J. Lovett's birthday, when he was presented with a large birthday cake and suitable gift.

Retired Halifax Doctor Observes 90th Birthday. Congratulations are being extended to an esteemed citizen and physician, Dr. J. N. Mack, of Halifax who celebrated his ninetieth birthday on Sunday, September 30. Since his retirement after a strenuous life as general practitioner he has lived quietly at his home on Ogilvie Street. There he has enjoyed working in his garden, situated in one of the most beautiful parts of the City, adjoining Point Pleasant Park, property which has been in his family for more than a century. His friends in Halifax and other parts of the Province are joining in wishing him every comfort and happiness in the evening of his life.

At Middleton, N. S., September 10th to Dr. and Mrs. H. Edgar Kelley a daughter—Eileen Richan.

At Halifax, N. S., October 7th, to Dr. and Mrs. Victor O. Mader, a daughter.

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The Editors have much pleasure in publishing the following from the *Liverpool Advertiser*:

VETERAN PHYSICIAN IS STILL PRACTISING AT 85

Mill Village, Sept. 24.—Dr. Freeman Park Smith of Mill Village celebrated his eighty-fifth birthday recently. He has been following his profession for fifty-three years and is one of the oldest, if not the oldest, practising physician in Nova Scotia. He was born at South Brookfield, his parents being Mr. and Mrs. Samuel Smith. His brother Primrose occupies the old homestead.

He attended the school in his native village and then spent two years at Acadia and two years at Dalhousie. In 1881 he graduated from Bowdoin Medical College, Brunswick, Maine. His collegiate course was interrupted by a break of two years during which time he worked in the lumber woods to secure money to finish his education.

He began his practice at Barrington Passage where he soon established the reputation of a brave and skillful doctor. The roughest weather did not hinder him from making his regular trips in an open boat to Cape Sable and adjoining islands. His introduction of boracic acid as a disinfectant won a recognized place among his brother physicians.

While in Barrington Passage he married Mary Wilson, a daughter of Capt. Thomas Wilson of Barrington. They have one child Elizabeth, who is now Mrs. J. P. Buchanan of Liverpool.

In 1891 Dr. Smith moved to Mill Village where he has resided ever since. By his medical skill and genial nature he soon built up a large country practice. Every one throughout the whole countryside knew that he would answer their call if he possibly could. During the long years of travel over this wide field he had many dangerous experiences of which the following is a sample. One bitterly cold winter afternoon he was called to Port Medway. The main road was blocked with snow and as the river was well frozen over, teams were travelling on the ice. He had no difficulty in reaching his destination, but when he was ready to return, night had set in and snow was falling. There was nothing however for him to do but try the ice. For a time he kept the track but soon discovered he was wandering around on the harbour in great danger of striking thin ice and breaking through.

Proceeding carefully he eventually noticed a place ahead that seemed blacker than elsewhere. Leaving his horse and making his way through the snow he discovered that it was a wooded island. This gave him his position and he was able to return to Port Medway. Although tired and cold he at once started by road for home, which he reached by the help of men and teams in the small hours of the night. Snatching a few hours rest and taking a fresh horse, he was away before daybreak to see a very sick child in Greenfield, counting it all a part of the day's work.

In spite of many hardships such as these Dr. Smith at 85 years of age is still hale and hearty. A host of friends throughout Nova Scotia extend congratulations and wish him many more years in which to enjoy the well earned fruits of a long and useful career.