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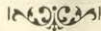
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Protamine Insulin

C. H. BEST.

Professor of Physiology, University of Toronto.

WHILE this is the first occasion on which I have had the pleasure of addressing a scientific society in the Province of Nova Scotia I may say that I feel very much at home. Both of my parents were born and brought up in King's County. I have had the pleasure of meeting this afternoon a classmate of my father's at Dalhousie Medical School, Dr. Angus Morton, and Dr. Macaulay, a classmate of an uncle and an aunt who graduated in Arts from this University. If you will pardon a further digression from the subject which I am supposed to discuss, I may also state that it has been a very great pleasure to me personally that my colleague Professor Beecher Weld has been honoured by appointment to the Chair of Physiology in your Medical School.

I am afraid that much which I will discuss today concerns the practising physician only indirectly. You are all, however, interested in carbohydrate metabolism and insulin and it is my hope that you will perceive that the subject is advancing very rapidly and that much can still be done to improve the lot of the diabetic patient. As a preliminary to my discussion on protamine insulin I must review very briefly certain aspects of the chemistry of the anti-diabetic hormone.

It was possible to prepare insulin in a very satisfactory state of purity before the substance was obtained in crystalline form. This latter achievement by Abel and his colleagues in 1927, is of course, a very important landmark in the history of the subject. The crystals occur in several forms and are to some extent interconvertible. The recent work of my colleague D. A. Scott on the rôle of zinc in the crystallization of insulin has placed the preparation of these crystals on a more scientific basis. It is now a relatively easy matter to obtain large amounts and a fair yield (75 per cent) from suitable amorphous material. The crystalline material was termed by Scott "zinc insulinate." Other metals may also be used in the preparation of the crystals and these combine with insulin in amounts which are proportional to their atomic weight. The average ash content of each insulin salt is proportional to the atomic weight of the metal it contains. This indicates that the crystals contain the metals as chemically combined constituents and not as impurities. Scott and Fisher have found that if the molecular weight of insulin be taken as 20,000 each formula weight of insulin combines with 1.4 formula weights of cadmium, with 1.5 formula weights of cobalt and 1.6 formula weights of zinc. If the molecular weight of insulin should be 40,000 one formula weight would therefore combine with approximately three formula weights of the metals. Svedberg, using his ultracentrifuge technique, has suggested 35,100 for the molecular weight of insulin and Crowfoot, on the basis of X-ray studies, a value of 37,200.

The chemical structure of these crystals of insulin has attracted a great deal of attention. This is not surprising since there are relatively few crystalline proteins which can be so readily assayed. An appropriate idea of the

potency can be obtained when only a few milligrams of the material are available. There is an abundance of evidence that the crystalline material is protein in nature. Eight amino acids have also been isolated—cystine, tyrosine, arginine, histidine, lysine, leucine, glutamic acid and phenylalanine. Others are quite likely present. In the search for the active groupings in the molecule attention has been directed at the NH_2 group and the disulphide linkages. Destruction of the amino group inversibly inactivates insulin. When the disulphide grouping is reduced to the sulphhydryl the specific activity is lost—some investigators believe irreversibly while others think that a partial inactivation which can be reversed may be produced. An insulin-plastein may be formed when the products of peptic digestion of insulin are allowed to interact under certain conditions but this, as Scott considered likely before he performed the experiment, possessed no anti-diabetic activity. The complexity of the insulin molecule makes the possibility of synthesis remote.

The international yardstick for insulin is the new crystalline standard. Fifty grams of crystals were prepared in the Connaught Laboratories by Dr. D. A. Scott and presented to the Health Organization of the League of Nations by the Insulin Committee of the University of Toronto. The potency of the new standard was compared to that of the old amorphous preparation in a number of laboratories. The results were submitted to representatives of the National Institute for Medical Research, the University of Copenhagen and the University of Toronto (represented by Sir Henry Dale, Professor August Krogh and the writer). A recommendation was made that a value of 22 units per mg. be assigned to this new standard. It was felt that this would not change the strength of the unit. This recommendation was accepted by the Health Organization of the League of Nations. The unit of insulin is, therefore, defined as the activity contained in $1/22$ of a mg. (0.045 mg.) of the new International Standard.

Improving Insulin as a Therapeutic Agent.

The advances recently made in this field have prompted me to discuss it in some detail.

Vigorous efforts were made in 1922 and 1923 to find a means of administering insulin by the enteral route. Very little success was secured, and if we now take all the reports on this problem into account, the situation is approximately as follows. Insulin is destroyed by the enzymes of the stomach and small intestine. Small amounts of insulin may be absorbed from the small intestine, particularly in young animals, when very large doses are given. The rate of absorption is not predictable. There is no appreciable absorption from the large intestine. The situation with respect to the absorption of insulin from other mucous membranes is not more promising. An anti-diabetic effect can be observed when an insulin solution is inhaled, but results of practical value have not been secured. A very little insulin may be absorbed through the skin when vigorously rubbed in with a lanoline base.

It is well known that the anti-diabetic hormone is rapidly absorbed when given intraperitoneally, intramuscularly or subcutaneously. The rate of action of purified insulin is only slightly less when given subcutaneously than when administered into a vein, and the intramuscular injection does not appreciably delay absorption. We can, therefore, restrict our discussion very largely to the question of modification of the rate of action of insulin which is administered subcutaneously.

There is an abundance of evidence to show that crude insulin exerts a more prolonged effect than the purified material. It is also well established that a given amount of insulin administered in several small doses exerts a greater effect than when the same amount is administered in large doses. This effect is due, probably, to the relatively larger amount of insulin excreted or destroyed when the large doses are employed. These facts have stimulated investigators to attempt to secure the prolongation of the absorption of insulin from the subcutaneous tissue spaces. The first report of an attempt to do this was that of Burgess, Campbell, Ozman, Payne and Poulton, who used insulin in gum arabic solutions. These investigators secured a definite prolongation of insulin action in diabetic patients and in experimental animals. Similar results were obtained by de Jongh and Laqueur. Leyton convinced himself of the efficiency of insulin solutions mixed with certain oils. He was able to give larger doses, and apparently expected the use of oily suspensions of insulin to become general. Suramyi and Szalai obtained a prolonged action and less frequent hypoglycaemic reactions when insulin was mixed with lecithin emulsions. Skouge and Schrupf confirmed the lecithin results and found, as might perhaps be expected, that no extension of the insulin effect was obtained when the mixtures were given intravenously. They found it possible to administer subcutaneously large doses of insulin in lecithin without the production of hypoglycaemic reactions. Several groups of investigators—Werner and Mongio, and Clausen—attempted to prolong the action of insulin by administering pituitrin or epinephrin with the insulin solution. Little success attended these efforts.

The use of more highly purified insulin preparations has led to complaints from clinicians. While the incidence of local reactions has been reduced an increase in the number of patients requiring more than two doses daily has been observed.

Apparently the first attempt to modify the action of insulin by the use of metals was that of Bertrand and Macheboeuf. These investigators reported a very definite extension of insulin action when cobalt and nickel were added to the insulin solutions. This report led to the development of a controversy, and the findings have not been generally confirmed. We must not lose sight of the fact, however, that Bertrand and his collaborator were the first to suggest the use of a metal in this connection. The blood sugar curves which Maxwell and Bischoff have published appear to indicate that basic ferric chloride definitely slows the absorption of insulin. These investigators have used other metals including zinc in their studies of other hormones.

Scott and Fisher were led to a study of the action of zinc salts on the rate of absorption of insulin by the findings referred to above, that zinc, or some closely related metal, was an essential component of crystalline insulin. The addition of the appropriate amount of zinc to insulin solution definitely delays the absorption of insulin. It is possible that the zinc forms a compound between the insulin and some component of the tissues, or that the zinc solution delays the absorption of the insulin by an astringent action or by some other mechanism. Scott and Fisher have reported very definite findings in rabbits, and Dr. Kerr, working under my general direction, has secured results which demonstrate the zinc effect very clearly in the dog. Dr. Walter Campbell in Toronto and Dr. Rabinowitch in Montreal have recently used zinc insulin in diabetic patients. A prolonged insulin effect has been observed.

Protamine Insulin.

This brings us to a consideration of protamine insulin which has been used with very considerable success for more than two years by Hagedorn and his colleagues in Copenhagen. The chemical background of this ingenious procedure for delaying the absorption of insulin is most interesting and I will now digress for a moment to discuss it.

In 1868 Friedrich Miescher began an investigation of the chemistry of cell nuclei. This work, conducted in Hoppe-Seyler's laboratory, showed that proteins of acidic character containing phosphoric acid were present in nuclei of pus cells. Later he found these nucleons or nucleic acids in combination with basic substances in the sperm of salmon. He named the basic substances protamines. Some sixteen years later Kossel detected another type of basic substance in combination with nucleic acid. These were later shown to be similar to but somewhat more complex than the protamines. They are now called the histones. Kossel also isolated a protamine from the sperm of the sturgeon, which resembled but was not identical with the base from salmon sperm. Protamine was adopted as the general name for these bases while each separate one was called after the family name of the fish from which it was secured—thus sturine (sturgeon) etc. This protamine contains, arginine, lysine and histidine, and is one of the tri-protamines. Sturine also contains alanine and leucine. Clupeine obtained from herring sperm is a mono-protamine and contains arginine as the only basic constituent. Alanine, serine, an aminovaleric acid, and proline were also present. Salmine is also a mono-protamine and contains serine, aminovaleric acid and proline as well as arginine. Hagedorn and his colleagues have prepared a new protamine—probably of the mono-variety—from the sperm of *salmo-iridius* (Salmidrin) and they have used this in their clinical experiments with protamine insulin. In Toronto, protamine from various species of British Columbia salmon has been found by Scott and Fisher to give quite as satisfactory results as that from the rainbow trout. The salmon sperm is, of course, available in much larger quantities. Proteins are known to combine with the so-called protamines. The compounds are soluble at a certain hydrogen ion concentration, but insoluble at others. Hagedorn and his collaborators have very ingeniously taken advantage of this fact, and have demonstrated beyond doubt that the compound of insulin and protamine is a very effective therapeutic agent in certain cases. A clear solution of protamine is added to insulin. The protamine is dissolved in a buffer solution of such a composition that the hydrogen ion concentration of the insulin-protamine mixture is approximately pH7.2. At this pH the insulin-protamine compound is insoluble and forms a flocculent precipitate.* If the vial containing the mixture is shaken and the suspension administered, the insulin is slowly liberated in the tissues and a prolonged anti-diabetic effect is exerted. That this is due to slow absorption has been demonstrated directly by Beecher and Krogh who watched the rate of disappearance of regular and protamine insulin from the tissue spaces.

Protamine Insulin in Depancreatized Dogs.

While the use of protamine insulin in diabetic patients had been investigated in some detail before these experiments on dogs were initiated considerable interest is attached to the findings in a completely depancreatized animal. Dr. Kerr has found it possible to keep several of the members of our colony of diabetic dogs in an excellent state of health and on a very liberal diet with

* It has now been found possible to stabilize the suspension of protamine insulin so that the mixture can be distributed, i.e., only one vial is necessary. The mixing is done by the manufacturers of insulin.

one dose of protamine insulin daily—20 units approximately for a 10 kilogram dog. The animals excrete only small amounts of sugar of the same order that are observed with two doses of regular insulin. When the daily dose of regular insulin (20 units) is given at one injection large amounts of sugar are excreted. These results provide additional evidence that a large part of the insulin administered is excreted or otherwise lost when its absorption is very rapid. As in human patients the fluctuations of blood sugar throughout the day are largely eliminated and the incidence of hypoglycaemic reactions is very definitely less. The results on diabetic dogs indicate that protamine insulin is a much more effective therapeutic agent than regular insulin. Clinicians have expressed the opinion that protamine insulin lacks the prompt action of the regular material and that in certain cases it is necessary to inject a little regular insulin at the same time as the complex. With the cooperation of Dr. Scott of the Connaught Laboratories, protamine insulin containing some unbound insulin has been prepared and tested in my laboratory by Mr. Dobson. The prompt fall of blood sugar is obtained and this is followed by the delayed action as the protamine complex disassociates. Further work will be done on this preparation containing both free and bound insulin and the material will be made available for clinical trial.

Zinc and Protamine Insulin.

There are one of two further points which may be profitably mentioned here. The results obtained by Scott and Fisher which have been confirmed in the Insulin Committee's testing laboratory by Hershey and Lacey, and in the Department of Physiology by Dr. Kerr, have shown that purified insulin solutions which are practically ash free, and purified protamine preparations in which the ash content is also extremely low, do not exert the prolonged action which is characteristic of the compound formed by the union of the cruder preparations. A precipitate is formed when these solutions are mixed, but insulin is apparently split off very rapidly in the tissues. The delayed response is, however, secured when a very small amount of zinc is added to the purified protamine, or insulin, preparation. It would appear, therefore, that zinc may play a part in the union between protamine and insulin, and that the effect of the crude protamine preparation is due, in part, to the zinc or related metal which they are known to contain in appreciable amounts. It is quite possible that many protamine preparations will be improved by the addition of small amounts of zinc, and it is possible that a more predictable result will be obtained with protamine if precautions are taken to insure an adequate zinc content.

The Standardization of Protamine Insulin.

This is a matter which demands immediate attention and a suitable method will probably be recommended in the near future by the Toronto Insulin Committee. There are several possible procedures: (1) An adequate quantity of a satisfactory protamine preparation could easily be made and, by international agreement, set up as the standard protamine. The efficacy of the protamine would, however, depend on the nature of the protamine preparation. The activity of the complex is dependent, in part, on the amount of zinc or other metal present. (2) Standard protamine and standard insulin might be made available. The complex formed when the solutions of these two standards were mixed under fixed conditions would exert a certain, pre-

sumably a constant, effect on the blood sugar of rabbits under standard conditions. The effect of this standard complex could be compared, using the same group of rabbits, with that of the suspension produced when insulin and protamine submitted by the manufacturing firms were mixed. (3) A third possibility is that the complex formed by the insulin and protamine, which is submitted for standardization, could be tested under fixed conditions against the present international insulin standard. The complex would obviously have to be diluted until the duration of its effect was comparable to that of a sub-convulsive dose of the crystalline standard. This procedure is being investigated by Dr. Hershey and Mr. Lacey of the Insulin Committee's scientific staff. If they succeed in developing a satisfactory method the test can be run in the usual working day. The apparent unitage of the insulin protamine complex would be expressed in terms of the international standard unit. Thus a forty unit insulin to which an excess of protamine has been added might, after suitable dilution and under standard conditions, produce a lowering of blood sugar equivalent to that secured, after similar dilution, when a solution containing 65 units per cubic centimetre was used. If zinc as well as protamine (Scott and Fisher) was added the apparent unitage might be 75 or more per c.c.

Considerable research work is required to determine which method of testing is the most suitable. In the meantime a protamine preparation to serve as a temporary standard has been prepared for the Insulin Committee by the Connaught Laboratories.

A Note on Nomenclature.

In view of the confusion which will certainly result if various names are used for the same substance or mixture of substances the following suggestions may be made:

The work of Scott and his colleagues, which has been referred to previously, indicates that the crystals of insulin are a true salt. The name zinc insulinate when zinc is used in the preparation of this material is, therefore, appropriate. When zinc is added in an amount greatly in excess of that required for the formation of crystals it may be that a more complex salt is formed but since this is not established it will be advisable to refer to this material as zinc insulin. The same remarks apply to the protamine insulin complex. This may also be a salt but until it is definitely established that this is so the name protamine insulin is preferable to protamine insulinate. Insulin solutions to which both protamine and zinc have been added may be labelled protamine zinc insulin.

* * * * *

The significance of the results of the recent work on the prolongation of the action of insulin by retarding its rate of absorption from the subcutaneous tissue spaces extends far beyond the boundaries of the treatment of a single disease. Some success has already been secured in attempts to delay the absorption of other hormones and this field will undoubtedly be extensively cultivated in the immediate future.

The Present Status of Endocrine Therapy*

CHANNING FROTHINGHAM, M.D.

Boston, Massachusetts.

THE amount of experimental data concerning the so-called endocrine glands has accumulated very rapidly in recent years. Some of these results help to clarify this confusing subject; others seem at times to add to the confusion. It has been definitely established, however, that the activity of these glands is important and there is a very close interrelation between many of them. Certain ones have a definite stimulating or depressing effect upon the activities of others. These glands do part of their work by producing hormones which are best described as messengers moving from one gland to another to produce certain effects upon the receiving gland, or to various parts of the body calling the tissues in these parts to activity. Recently evidence has been produced to suggest that there are anti-hormones as well as hormones which further complicates the problem.

Although inflammatory conditions may occur in these endocrine glands, such as tuberculosis in the adrenal glands, as a rule the diseases of these glands seem to consist of hypofunction or hyperfunction. Just what causes the hypofunction or hyperfunction is not always clear. In some instances, however, the hyper-activity may be due to benign or even malignant tumors of these glands. In certain instances, it is relatively simple to decide which gland is functioning improperly, but in other cases the diagnosis is much more difficult and the picture is found complicated by the fact that often more than one gland is at fault at the same time.

This afternoon the discussion will be limited to the treatment of abnormalities of function of these glands. This treatment consists in surgery, the use of roentgen-ray or some type of medication. Most of the medication consists in extracts from similar glands in different species of animals, but more simple medication, such as the use of iodine in some form in certain disturbances of the thyroid is used.

At this time it might be appropriate to say a word about glandular extracts in general. In a recent book on Endocrinology in Modern Medicine by Wolf, there is a long list of preparations of these glandular extracts which are already on the market, and he mentions the fact that he is only compiling a limited number of the products available. These glandular extracts are very promiscuously used by physicians, sometimes given by mouth, sometimes subcutaneously and sometimes intravenously. They are sometimes given singly or in combinations. There is very little actual proof that any of them have any real value, and it seems as though the enthusiasm of the

*Delivered September 2, 1936, to the Refresher Course at Dalhousie University, Halifax, Nova Scotia

representative of the pharmaceutical house was an active factor in stimulating the medical profession to try out these preparations. Up to the present time only a small number of active principles from these glands have been definitely isolated. They are Pitressin, Insulin, Thyroxin, Adrenalin and Cortin. Of the many other preparations on the market, time alone will tell whether they have any real pharmacological action.

This afternoon I will take up one gland after the other and mention what can be done in the way of treatment for abnormalities of function of the gland.

PINEAL GLAND

Our knowledge in regard to the function of this gland is very limited. Experimentally it has been shown that the administration of pineal gland will retard growth in rats. In human-beings disturbance in the gland seems to lead to precocious mental and sexual development. At the present time it is a fair statement to say that there is no treatment for abnormalities of the pineal gland, and no evidence that treatment with extracts from the pineal gland has any real value.

PITUITARY

In general the pituitary gland may be considered as a whip to stimulate other glands and tissues of the body into action. It is anatomically divided into two parts with somewhat different action emanating from each part. The anterior part influences growth, sexual organs and the inter-relations between other glands of internal secretion. The posterior part is an active factor in the contraction of smooth muscle fibers. There is a long list of pathological conditions which are considered due to abnormalities of the pituitary gland and a variety of therapeutic procedures are suggested. These conditions will be discussed separately.

Infantilism is usually attributed to some abnormality of the pituitary gland, but there is reasonable doubt whether the abnormality is only in the pituitary and not in several glands. The claims of benefit by glandular extracts in this condition are so numerous and so many extracts are used that it seems unwise to be sure that any of the methods of treatment are effective.

Dwarfs, Dercum's Disease or Adiposis Dolorosa, Simmonds' Disease, consisting of marked debility and cachexia, Laurence-Biedle syndrome, consisting of mental deficiency and polydactylism and so-called pituitary obesity are all considered to be due to abnormalities of function of the pituitary gland, and like in infantilism many preparations have been recommended but not enough substantial results have been obtained to justify the belief that any of these conditions are favorably influenced by glandular therapy.

It must be borne in mind that the condition of over-activity may exist temporarily and then burn itself out, or tumors may be active temporarily and then cease their activity.

Two conditions, gigantism and acromegaly are considered to be due to adenomas of the eosinophile cells of the pituitary gland. The condition may become quiescent after developing to a certain extent. X-ray treatment in some instances seems to cause a cessation of the progress of acromegaly, but as giants must stop growing sometime and as acromegaly before the days of the x-ray therapy often became stationary, it is difficult to be sure how much can be accomplished in the way of treatment.

Another condition known as the Schüller-Christian syndrome, which consists of membranous bone replacing calcified bone, exophthalmos and diabetes insipidus is considered related in some way to the pituitary gland and seems to respond definitely to x-ray therapy over the areas of bone deficiency and the use of pituitrin intramuscularly.

Fröhlich's syndrome, sometimes spoken of as Dystrophia Adiposo-Genitalis, in which there are abnormalities in the disposition of fatty tissue, and undeveloped sexual organs is considered to be due to a failure on the part of the anterior lobe of the pituitary to send the appropriate stimuli to the genital organs. Considerable benefit is claimed in these cases by the use of antuitrin or the pituitary-like substance which is extracted from the urine of pregnant women or animals. Certain cases of sterility are considered to be due to this condition and enough claims have been made to warrant a trial of this treatment in cases of sterility when other causes are wanting.

Diabetes insipidus is very definitely hitched up with the activity of the pituitary gland and can be controlled by pituitrin intramuscularly. In my personal experience I have followed a case which had had pituitrin injections over a period of four years, and at the present time this patient is alive and well. In other instances, there seems to be a slight improvement in the action of the pituitary gland so that injections may be diminished or given up altogether.

The most striking example of abnormality of the pituitary gland is the clinical picture produced by adenomas of the basophile cells of the pituitary which cause very marked changes in the appearance of the individual. The features become enlarged and coarsened. The fat is very much increased, especially around the abdomen where definite pigmented striae appear and the patients often develop a general increase in hair. Under x-ray therapy the whole appearance of these patients change and they return to practically a normal appearance. (A few lantern slides of such cases before and after treatment were shown at this point).

THYROID GLAND

Overactivity of the thyroid gland is well known to you all. Although some benefit has been obtained in overcoming this overactivity by the use of x-ray, the best procedure is operation, consisting in a partial thyroidectomy. This operation can now be rendered much less dangerous by the use of iodine as a pre-operative procedure. Iodine should only be used as a pre-operative procedure and not given to see what effect it will have upon the hyperthyroidism, because if it is given in this way it does not accomplish a permanent cure and then becomes very much less effective as a preparation for operation.

Hypoactivity of the thyroid gland produces different symptoms depending upon the age at which it develops. The children in whom the thyroid activity has been absent before birth present quite a different picture from the child who develops thyroid insufficiency or the adult who becomes myxoedematous after growth has taken place. Retardation of growth due to pituitary deficiency can be separated from retardation due to thyroid deficiency by the fact that in thyroid deficiency the bone development is retarded more than with pituitary deficiency. As a rule thyroid deficiency in children keeps them overweight and dull, but occasionally one finds a child alert and irritable. In addition to the cases which present the clinical picture of hypothyroidism, there are also certain people who have a low basal metabolism without ap-

preciable peculiarity of appearance and these cases do have their metabolism return to normal upon thyroid medication. Therefore, they must be looked upon as having a deficiency in thyroid activity.

Cases of hypothyroidism respond readily to thyroid extract given by mouth, although thyroxin can be given beneath the skin. This is usually done only when a case of hypoactivity of the thyroid cannot be regulated by oral administration. It must be remembered that in cases where the thyroid gland is quite deficient, a patient may be rather sensitive to the extract by mouth, and therefore, the administration should be given cautiously with proper controls. It is interesting that cases with clinical evidence of hypothyroidism as well as a low basal metabolism very often cannot tolerate as much thyroid extract at the start as the cases with a low basal metabolism but no clinical evidence of thyroid deficiency.

PARATHYROIDS

Hypofunction of the parathyroid glands or absence of the parathyroid glands due to surgical removal result in the symptom of tetany. Other conditions will also sometimes produce tetany. Tetany dependent upon parathyroid deficiency can be controlled by a diet high in calcium and low in phosphorous with the addition of Vitamin D. There is a preparation called parathromone, which as a result of a limited clinical use seems to suggest the possibility of being really of value.

Hyperactivity of the parathyroid glands usually is associated with adenomas of one or more of the glands and this overactivity leads to decalcification of the bones. A differential diagnosis between decalcification from disuse in the long bones and spine and decalcification from hyper-parathyroidism may be made by an x-ray of the skull, because in decalcification from disuse the skull usually remains normal. In the blood in hyper-parathyroidism the calcium and phosphatase are elevated, but the phosphorous is diminished; both calcium and phosphorous are markedly increased in the urine and there is a tendency for renal stones to be formed. One should, therefore, be suspicious in a person who has numerous renal stones of overactivity of the parathyroids. X-ray treatment of these tumors has not been satisfactory and surgical removal has been followed with spectacular recovery.

THYMUS

Very little is known in regard to just what activity the thymus gland plays, but it is involved in growth in some way. Some recent experiments by Rowntree have given some extraordinary results on the large size of animals and the early development of their power of reproduction as a result of feeding thymus gland extract. There is also a possibility that the thymus gland may be involved in some way in the problem of infection and immunity. With our present knowledge, it is fair to say that there is no practical therapy of value with thymus gland extract.

SPLEEN

In regard to the spleen there is no satisfactory evidence that any therapeutic advantage can be obtained from the use of splenic extract.

ADRENALS

Defective function on the part of the adrenal glands presents a well-known clinical picture. This hypofunction of the adrenal gland is usually

associated with tuberculosis but occasionally is just the result of atrophy. An active agent from the adrenal gland known as cortin has been developed and will carry on life for individuals whose adrenal glands have stopped functioning properly. This preparation at the moment has to be given intravenously and is expensive so that it is not of much practical value. The possibility of further development along these lines with a preparation of more practical value is something to hope for.

It has been suggested by Crile that so-called neuro-circulatory asthenia may be due to a hyper-activity of the adrenal glands and he has recommended denervation of the adrenals as a cure for this condition. A clear-cut clinical picture hitching up the vague symptoms attributed to neuro-circulatory asthenia with the adrenal glands has not been as yet well enough established for the average physician to recognize it and at the present time this condition and treatment must be considered as a problem based on theory rather than fact.

Tumors of the adrenals occur and present different clinical pictures dependent upon the age of the individual when the tumor develops. If such a tumor develops in embryo, pseudo-hemaphroditism results. When it occurs in adults, it usually occurs in women and results in an abnormal increase in hair, a change towards male characteristics, pigmentation of the skin and temporary hypertension. Favorable results have been reported in certain cases after x-ray therapy or surgical removal.

PANCREAS

Diabetes mellitus with treatment by insulin is too well-known to you all to need discussion in such a gathering as this. Hyperinsulinism, however, is a much more rare condition. It may occur in connection with benign adenomas of the pancreas or in malignant growths either localized or with metastases. Cases with hyperinsulinism due to adenomas have been confused with functional disease and a careful study of the blood sugar should be made in suspected cases. Surgical removal of the tumor if possible is the appropriate treatment. If operation is not practical, the symptoms must be combated by administration of sugar in some form.

OVARIES

Although a great deal has been written about the benefit of glandular therapy in regard to disturbances in menstruation from lowered activity of the ovaries, and the symptoms of the menopause from a cessation of their function, there is very little real proof that any treatment with glandular extracts is of value. However, so much has been claimed and so much work is being done, it is only proper to mention the fact that extract from the anterior part of the pituitary gland or pituitary-like extract from the urine of pregnant women or animals is being tried to stimulate the ovaries and diminish some of these symptoms which are only vaguely attributable to ovarian dysfunction.

TESTICLES

Attempts to stimulate the activity of testicles by glandular therapy are too indefinite to be worthy of serious consideration.

There should be included in a talk of this sort a word about the estrogenic substance which is obtained from the urine of pregnant women or animals. Just where this will fit in therapy eventually is as yet indefinite, but it does

produce different changes in vaginal epithelium in the human-being so that it must be looked upon as a substance with some definite action. It has been suggested as a benefit in stubborn cases of gonorrhoeal vaginitis in young children.

Another preparation which is active and will eventually have a more definite place in therapy is placental extract. Apparently there are two substances which can be extracted from the placenta that are active: One is a factor in producing immunity against certain of the acute or contagious diseases, and the other is a substance which is exceedingly powerful in causing coagulation of the blood. This latter is so powerful that at the present time it can only be used in human beings in local applications, but favorable results have been reported in bleeding from mucous membranes as after tonsillectomies or bleeding from sinus tracts following operation.

From the above it is evident that many preparations of glandular extracts are being used without real justification and with tremendous expense to the patient. It is hoped that physicians will be guided in this type of therapy more by the established facts than by the enthusiasm of the representatives of the pharmaceutical houses. On the other hand, it must be kept in mind that new preparations from the glands are continually being developed and old ones improved. It must also be remembered that the method of administration frequently makes appreciable difference. Therefore, the medical profession should keep an eye open to the possibilities of this type of therapy in the future, but the eye should always remain a critical one.

Dementia Praecox—A Mental Hygiene Problem

J. W. MACINTOSH, M.D.

IT is in a spirit of humility that one should approach a discussion of such a subject as Dementia Praecox. There are still many obscure points about its etiology; but of its importance there can be no doubt, for year by year its power is increasing, and socially and economically it continues to impose its burdens upon humanity. This disease should take first rank in any discussion of mental hygiene problems. It is essentially a disease of adolescence and as such is productive of more heart-aches than any other mental disease, striking as it does at the dependant group of humanity who instead of remaining objects of parental pride and future safeguard may become instead a source of permanent financial burden and despair.

Our present knowledge of this disease owes much to the admirable work of Professor Emil Kraepelin who popularized the term Dementia Praecox which he described as a disease arising usually at the age of puberty and nearly always terminating in hopeless dementia. Bleuler modified this view to admit of a more favourable prognosis and coined the term Schizophrenia (split personality), presumably in nomenclature and fact to suggest a better outlook for the patient. The terms are frequently used interchangeably. There is very little room for argument in the age incidence of the condition. It is true that we see cases apparently developing at thirty or thirty-five years, but if a correct history is available we find that symptoms of the disorder have been present for years, and not obviously expressed, until some precipitating factor forces them to withdraw completely from the world of reality to the smaller but presumably more satisfying world of phantasy. This psychosis is not easily defined though fairly easy to diagnose. It embraces those cases which show slow, steady deterioration of the entire personality, and is recognized as occurring in four forms, viz.; Simple, Hebephrenic, Katalonic, Paranoid, but since all forms have definite symptoms in common, the recognition of the particular type of the disease is relatively unimportant, especially from the standpoint of the early case. The common symptoms and especially the warning ones should be known, and whenever possible should be recognized. Fairly early in the disease a "don't care" attitude becomes apparent, which is the result of emotional blunting and apathy, so that there is abnormal response to joy or sorrow and later in the disease complete indifference to both.

According to Farrar, definite Dementia Praecox trends should be suspected in the following:—

- (1) The backward type, lacking ambition, absent minded and often playing truant.
- (2) The precocious type, the serious, prudish, model child.
- (3) The neurotic type, selfish and deceitful with headaches and other minor ailments and temper tantrums.

- (4) The asocial type—seclusive and day-dreaming.
- (5) The juvenile type which never seems to grow up.

In the well developed case dreaminess, day-dreaming and lack of attention to detail are marked. There is an entire absence of active attention though memory and passive attention remain good for a considerable time. A striking feature is the obvious lack of co-ordination between mood and thought; so marked that the patient may respond to the news of a serious personal loss with a smile. This is one of the oddities which the layman recognizes as denoting mental disorder, together with meaningless laughter in which there is no element of mirth. Loss of personal pride in appearance is seen at this stage and constant care becomes an essential. Delusions develop sooner or later and are usually preceded by ideas of reference in which some chance remark or newspaper story is interpreted by the patient referring to himself. Illusions and hallucinations are present at some stage or other. Until late in the disease consciousness is not clouded and the education acquired up to the onset of the illness remains unimpaired, but there is serious and almost complete indifference both to their own state and their responsibility to others. They may be at the mercy of their delusions and hallucinations. An imaginary voice gives a command and even if it orders the destruction of life it may be obeyed. Homicidal and suicidal impulses are frequently motivated by hallucinations.

The prognosis of the well developed case is generally unfavourable and the majority must ultimately become residents of mental hospitals. Ossian's reference to senility "Age is dark and unlovely" may well be applied to these old-young individuals. The "narrow house," however, is long denied them for many live out the normal span of years. Fortunately there is a brighter side. We know that while probably not more than 5% of well developed cases recover completely, a considerably larger proportion become adjusted and arrested so that in part they may become self-supporting and better still we know that if the *trend* and not the *disease* is recognized a large proportion can be prevented.

A recent and admirable publication—"Research in Dementia Praecox" by Nolan D. C. Lewis, brings out forcibly the fact that many treatments have arisen and fallen. General principles must hold sway until more light arrives and psychotherapy, attention to mal-adjustment in life and environment, treatment of glandular disturbance and focal infections, or any physical defects rank first in these. A personal experience with a now discredited treatment, that of Manganese Chloride intravenously, in which two out of a group of thirty-five apparently hopeless cases were discharged cured (They are still well seven years later) teaches the importance of intensive individual care and interest. Since there is reason to believe that the heredity is faulty in at least 60% of Dementia Praecox cases eternal vigilance should be maintained over the child who comes of a bad stock, especially when approaching puberty. When warning symptoms such as abnormal shyness, day-dreaming and anti-social signs develop in any teen age child proper guidance should be available. The shy sensitive child must be tactfully encouraged not driven—to go out into the open and face his problems. He must be encouraged to mix freely with his school-mates and not avoid them. The bookish, prudish and day-dreaming child should be encouraged to spend more time in clean outdoor sport and not be driven to spend more time with books or to excel at examina-

tions. The role of sex, in spite of all the books devoted to the subject, must still be considered obscure. One ventures the opinion that if sane education on sex matters were given without prudery and evasion, it would almost cease to be a factor in etiology. The general physical health must be maintained at a high level.

This major mental hygiene problem would become a far less serious one if warning symptoms were consistently looked for and, where possible, corrected. Especially is this true in those cases where faulty heredity renders them more liable to fall. It is the family physician who must be prepared to give proper instruction and advice in this problem. By the time the Dementia Praecox case reaches a hospital and a trained psychiatrist he may still be an interesting and instructive case, but far too often, he is nothing more.

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Scarlet Fever

F. F. EATON.

Definition. Scarlet Fever is an acute infectious disease caused by the streptococcus *Scarletinae*, and characterized by a sore throat and a punctate rash on the skin and roof of the mouth, followed by desquamation.

Incidence. It is a disease of early childhood. The period of greatest susceptibility is from birth to the eighth year. The mortality is 33 per cent in the first year, about 25 per cent in the second and third years, and then gradually drops to 3-5 per cent in the eighth year, where it remains throughout life. The mortality varies greatly in different epidemics but, according to reports from city health departments, has been very much reduced in the last fifty years. The disease is practically unknown in the tropics. The black races are practically immune to the disease and the yellow races have an increased immunity, as shown by the Dick Test.

Seasonal Incidence. Epidemics are more common in autumn and winter, and gradually lessen in summer. The incidence rises abruptly with the opening of school and falls rapidly with the closing in June. Certain families appear to be more susceptible to the disease.

Contagion. In most cases infection occurs by direct contact. Scarlet Fever is rarely transmitted by droplet infection, but may be communicated indirectly, although infrequently, by articles contaminated by the organism. The Scarlet Fever organism can persist for weeks in garments, books, toys and other articles and can thus be easy for transmission by a third person.

Morbid Anatomy. The morbid anatomy of Scarlet Fever is not characteristic. There is an acute dermatitis of varying intensity. The lesions of the throat may be catarrhal, membranous, or gangrenous, according to the intensity of the infection. Diffuse glomerular nephritis is characteristically associated with Scarlet Fever during the second and third weeks of the disease.

Symptoms. The onset of Scarlet Fever is usually very abrupt. The child may go to school perfectly well and during class may become suddenly ill with nausea, fever and sore throat. Vomiting is one of the most constant early symptoms. Soon after the onset of the disease the patient will have a high fever, dry skin, with a tendency for the cheeks to be reddened, while there is a peculiar pallor around the mouth and nose. The temperature usually rises rapidly to 103-105 degrees. The rash appears six to twenty-four hours later when numerous, fine, red, maculae appear around the hair follicles, and by confluence produce a deep blush of the skin. The rash usually appears first on the neck, behind the ears, and on the chest, gradually spreading within twenty-four hours to the arms and legs. In malignant Scarlet Fever the rash often becomes hemorrhagic. Since in mild cases the rash may appear in small areas and persist for only a few hours, it is of the utmost importance to examine the entire body repeatedly for its presence. Quite as characteristic as the rash is the examthem on the soft palate and roof of the mouth, which consists of a fine, punctate eruption and is, perhaps, the most constant sign of Scarlet Fever. In the early stages the tongue is heavily furred. In the course of a few days the heavy fur desquamates leaving the tongue smooth and red, with numerous papillae on its surface—the so-called "Strawberry Tongue." Sometimes a membrane forms on the tonsils resembling that of

diphtheria. If in the first two days of the disease the membrane spreads beyond the tonsils, it is often due to complicating diphtheria. Secondary to the throat infection there is swelling of the glands of the neck, particularly the so-called tonsillar gland at the angle of the jaw. The temperature usually reaches its maximum within twenty-four hours, continues high for three to five days, and then gradually falls by lysis. The height of the fever indicates the severity of the infection, but very severe Scarlet Fever may prove rapidly fatal when the temperature is low. The pulse rate usually ranges from 120-160, and if there is hyperpyrexia, may be difficult to determine. At the onset of the disease there may be a mild albuminuria. Young children sometimes have a convulsion at the onset. Delirium may appear after the second day. Diarrhoea may develop. Desquamation is one of the most typical signs of Scarlet Fever. The process begins on the chest and progresses as did the rash. It is usually complete in from two to three weeks on the body and may continue from four to seven weeks on the palms of the hands and soles of the feet.

Varieties. Scarlet Fever may be present without eruption, fever, angina, or desquamation. Mild Scarlet Fever is usually very difficult to recognize unless there is an epidemic. There is generally a mild sore throat and a rash which develops only in patches in the folds and persists from twelve to twenty-four hours. This is so insignificant that it is easily overlooked if not especially looked for. In mild epidemics a sore throat is the only sign of the disease. The difficulty of diagnosing this type is well illustrated by an instance in which three brothers had Scarlet Fever in turn. The first had a typical follicular tonsillitis without rash. A week later the second developed a similar angina with punctate erythematous patches of a very evanescent nature on the chest and in the axilla; and after another week the third boy came down with typical Scarlet Fever of moderate severity. Severe Scarlet Fever can be divided into the fulminating toxic type and the anginose or septic type. In the first the patient is overwhelmed by the infection and dies within twenty-four to forty-eight hours from rapid heart failure without manifesting any very definite signs of the disease. There is usually marked cyanosis and the patient stuporous and usually in a state of constant, increasing delirium. Another toxic type is manifested by high fever, great restlessness, headache, delirium, and an intense scarlet rash which is often hemorrhagic. Death generally takes place within forty-eight to seventy-two hours. The two toxic types are due to specific Scarlet Fever Toxin and if treated early respond to the antitoxin.

In the anginose or septic form of Scarlet Fever the severity of the throat infection is the most striking symptom. The exudate from the tonsil becomes confluent and spreads to the other structures of the throat. Instead of clearing up at the end of three or four days, the swelling progresses. There is dysphagia and difficulty of breathing, discharge of a profuse sero-sanguineous material from the nose and often early involvement of the paranasal sinuses and middle ear. If death does not occur in this septic state, there may be marked sloughing of the throat with formation of deep abscesses and general sepsis. This type is seen more often in infants and young children.

Sequelae. Otitis media, sinusitis, adenitis, nephritis, arthritis and gangrene occur. Angina, tonsillitis, cervical adenitis, and cellulitis may also occur.

Duration. At the end of the first week the patient with the usual type of Scarlet Fever has a normal temperature and is free from symptoms, but not until the fifth week has passed is he safe from the sequelae. Peritonsillar

and retropharyngeal abscesses are not uncommon. Severe sloughing, leading to erosion of vessels and fatal hemorrhage, may take place in the pharynx. The glands of the neck may become enlarged, and may form abscesses. Otitis media is one of the most common complications due to the infection in the throat and marked by the rapidity of the development. Even when the drum is incised early the process may extend to the mastoid cells, the lateral sinus, the meninges, or the brain.

Nephritis. Typical nephritis develops during the second and third weeks of the disease.

Arthritis. There are two forms, a severe, but rare complication, is septic and suppurative, which usually involves the larger joints, the second and ordinary form is very common in some epidemics, usually appearing at the end of ten days in the wrists, hands, elbows, and knees. As a rule there is spontaneous recovery in the course of a week.

Cardiac Complications. Endocarditis, acute articular rheumatism, subcutaneous nodules, and chorea are probably produced by mixed infection rather than by the Scarlet Fever virus alone.

Respiratory Tract. Purulent sinusitis is a frequent complication of a septic fever. As a rule, one attack of Scarlet Fever gives immunity for life. The fact that so many people who are exposed to the disease do not contract it suggests that much Scarlet Fever is unrecognized.

Diagnosis. The diagnosis must usually be made clinically. Abrupt onset, usually with vomiting, rapidly rising temperature, sore throat, marked reddening of the entire fauces, the punctate rash on the hard palate, followed in from twelve to twenty-four hours by a finely punctate blush on the neck and chest, which spreads over the entire body, with characteristic strawberry tongue and subsequent desquamation are so characteristic that it is easy to recognize the normal cases. A sore throat, with a definite punctate rash on the roof of the mouth and soft palate associated with the scarletiform rash, must be considered evidence of Scarlet Fever.

Measles. It is rarely difficult to distinguish measles from Scarlet Fever.

Rubella. Differentiation of mild Scarlet Fever and moderately severe rubella may resemble in every way the fine punctate rash of Scarlet Fever. However, the distribution is characteristic since the rash of rubella occurs on the face, where it is absent in Scarlet Fever.

Prognosis. The prognosis of Scarlet Fever is very uncertain. The mortality in different epidemics varies from three to forty per cent and even ninety per cent. The mildest Scarlet Fever may, in the second and third weeks, become extremely severe because of throat and renal complications. The older the patient, the better the prognosis. The prognosis in the toxic type is usually grave, but is much better if antitoxin is administered early. Hyperpyrexia, cyanosis, coolness of the skin with patchy erythema, marked early swelling of the lymph glands, and the tendency to bleed from the throat and into the skin are of very serious import, especially when they occur early in the disease. The prognosis in children who develop nephritis, even if they have had convulsions, is relatively good with proper treatment.

Prophylaxis. Immediate isolation of every Scarlet Fever patient, either at home or in a contagious hospital, is essential. If the patient remains at

home, individuals not directly exposed may be allowed their liberty if they show no symptoms at the end of eleven days. The danger of carrying Scarlet Fever is such that the physician should always wear a gown, roll the sleeves to the elbow during physical examinations, and thoroughly scrub his hands after leaving the patient. When the patient has recovered, everything that can be washed should be thoroughly washed with soap and water. Books and playthings must be burned. Bedclothes should be boiled or fumigated in a confined place. Susceptible individuals showing positive Dick test may be actively immunized by the subcutaneous injection of Scarlet Fever streptococcus toxin. Dick advises the use of five injections of 500, 2000, 8000, 25000, and 100,000 skin test doses of toxin at five to seven day intervals. While it seems well established 90 to 100 per cent of susceptible persons can be made immune to Scarlet Fever by this method, there are certain practical difficulties in administering such a long series of injections. Although this amount is necessary for permanent immunity, temporary immunity can be achieved by much smaller doses, as is shown by the report of Kiefer. It would appear preferable, an initial series of three injections 500, 2000, and 10,000, followed after two weeks by a retest, and to continue further immunization only in those who are still Dick positive.

As a general public health measure, active immunization, in its present form, cannot be advised. Many practical points concerning the duration of immunity, the best form of antigen to use, and the indications for immunization require further study. Consequently no standard rules of procedure which may not be modified by further experience can be stated at the present time. Active immunization is especially valuable in checking local outbreaks of Scarlet Fever in schools, small communities, and for the protection of those intimately exposed to the disease for limited periods of time. The general use of the antitoxin for prophylactic purposes is not advisable because of the relatively short duration of the protection, the low communicability of Scarlet Fever (only 9 out of every 100 exposed individuals contract the disease) and the severity of the serum intoxication which often follows its use. Children, or others exposed to Scarlet Fever should be watched closely for sore throat or other symptoms of the disease, and the temperature should be taken twice daily. At the first appearance of signs of infection a full therapeutic dose of antitoxin should be administered.

Treatment. Since in the early stages Scarlet Fever is not very contagious, immediate isolation protects other members of the family. Carpets, rugs, and hangings should be removed, and all unnecessary articles taken from the room. Scarlet Fever is a self-limited disease, so that in mild cases general therapy alone is necessary.

The patient should remain in bed for three weeks. Pospischill, who studied the effects of diet in a large series of cases, was unable to determine that the incidence of nephritis was higher when a full diet was given than when milk only was allowed. As soon as desquamation starts the patient should be anointed each day with liquid vaseline and washed every second day with soap. At the end of three weeks, if the temperature has remained normal and no complications have developed, the patient may be allowed to get up one hour each day. This period may be increased one hour daily. The urine should be examined daily during the first month and carefully examined once a week for at least two months after the illness, because occasionally renal complications develop after an interval of several months. At the end of four

weeks, if desquamation is complete and there are no discharges from the nose, mouth or ears, the quarantine may be terminated. Convalescent scarletinal serum has been widely used, and has yielded beneficial results. 60 c.c. of convalescent serum are given intramuscularly, and the dose is repeated in twenty-four hours if necessary. Scarletinal antitoxin, when given in adequate doses in the acute toxic stage of Scarlet Fever usually causes a prompt abatement of the toxic symptoms and disappearance of the rash within from twenty-four to thirty-six hours. The dose varies from 6000 to 30,000 units. The many severe anaphylactic reactions and occasional deaths, even with the intramuscular injection of antitoxin, have made many observers restrict the use of antitoxin to the more severely toxic cases. For the inflamed cervical glands the ice bag is indicated and should be changed every two hours. In some cases heat is better. The ears should be examined daily. If there is an injection of the drum, seven per cent carbolated glycerin should be instilled into the ear, filling the entire canal and a small piece of cotton saturated with the solution should be inserted in the ear as a plug. As soon as there is bulging of the drum it should be incised.

Provincial Association of Medical Health Officers

THE twenty-second annual meeting of the Provincial Association of Medical Health Officers was held in the Pathological Building, Halifax, on Monday evening, August 31st, 1936, the president, Dr. F. F. Eaton, M.H.O. of Truro, occupying the chair.

It was announced that on account of the Refresher Course being held this week, one short session of the Health Officers Association only was possible.

After routine business was disposed of, the scientific portion of the program was taken up. This consisted of a symposium on Diphtheria Toxoiding by Dr. F. O'Neil, Sydney; Dr. J. C. Morrison, New Waterford; Dr. H. J. Townsend, Louisburg; Dr. M. G. McLeod, Whycocomagh; Dr. A. E. Blackett, New Glasgow; Dr. G. V. Burton, Yarmouth. A brief resume of their contributions follows:—

Dr. O'Neil—Following an outbreak of Diphtheria in the New Victoria district, Cape Breton Municipality, Toxoid administrations were started in the school with 200 pupils. All present at the first visit, including the teachers, took the Toxoid. Twenty pupils were absent at the time. Two subsequent visits were made to this school and as a result, 180 received three inoculations. Of the other 20, some received one and others two.

The next school was Sydney River, with an attendance of 60 pupils, 55 of whom were given three inoculations. Next Meadows School, 26 pupils, 18 three inoculations. Then Grand Lake Road School, with an attendance of 65, forty-eight of these received the three doses. The Reserve Mines Schools with a population of 450 to 500 are now being attended to. Already 350 have been given two inoculations and 100 three. The Reserve Schools will be completed within the next few weeks. After that it is the intention to carry the work into the Gardiner Mines and Scotchtown Sections.

In carrying out this Toxoiding program, practically no opposition was encountered; in fact most favored it, consequently no difficulty was experienced in securing consents. There were no serious reactions, even mild ones were extremely rare. One child fainted immediately after having the needle which of course was a nervous phenomenon, and not due to the Toxoid. Toxoid was supplied free, by the Department of Health.

Dr. J. C. Morrison—In the fall of 1934, the first case of what turned out to be a small epidemic of Diphtheria, occurred in New Waterford in an Italian home. This family had shortly arrived from Italy and before leaving their native land had been released from quarantine for a throat affection. The usual quarantine, isolation and treatment measures were instituted. One child in the Italian home died and 20 cases developed in this section of the town. In the spring and summer of 1935 other cases developed. Then for a time the disease appeared to die down, until the autumn when there was a fresh outbreak. Up to this time there were four deaths. It was now apparent

that more drastic steps would have to be taken. At a meeting of the Board of Health, the seriousness of the situation was pointed out and Toxoiding of all children was recommended. Word was received from the Department of Health that the necessary Toxoid would be supplied without cost. With the aid of the other Medical men of the town and two nurses all schools were visited and 2000 children were given three doses of Toxoid. Consent of parents was willingly obtained. The occurrence of sharp reactions, even among the 12-year old children was scarcely worth noting. In all the children immunized, only one case of Diphtheria developed. This was probably due to the fact that sufficient time had not elapsed after treatment to give the necessary immunity, or to some peculiarity of the child's body or blood. (It is known that all will not be immunized by one course of injections.)

In addition to the 2000 children above referred to, about 200 were given one dose of Alum Precipitated Toxoid, which was quite popular with parents. In this group of 200, the attack rate to date has been NIL.

A large number of pre-school children was also inoculated. These were either done in their homes or at physicians' offices. Where children under five years are left unprotected, there will not be a satisfactory diminution in the Diphtheria rate. There appears little doubt however, with immunization generally effected among children of pre-school age, backed up by immunization of 70 to 80% of the school age group, that Diphtheria would soon become a rare disease.

Dr. H. J. Townsend—Of the 206 pupils attending the Louisburg schools, 125 were given three inoculations of Toxoid, 17 two inoculations and two were immunized before coming to town. In addition two teachers and four pre-school children received three injections.

One reaction was experienced in a girl of 15 years. Following the first injection of 1/2 c.c. there was a moderate amount of soreness and swelling at the site of the injection; after the second, also 1/2 cc., there was nausea, headache and chilliness, with a more marked local reaction; and after the third injection of 1 c.c., all symptoms reappeared in a more intense form. Recovery in each case was complete in 24 hours. This girl gave a history of a very severe attack of Diphtheria in infancy and for this reason the parents wished her to have all three injections in spite of the reactions.

Dr. M. G. MacLeod—Six years ago the children of Melford and MacPherson's Brook schools, 23 in all were immunized, and since that time there has not been a case of Diphtheria in these sections. Previously it had been occurring there every spring for a number of years.

In the year 1936, twenty-four children in the Glencoe district and 84 in Whycocomagh were Toxoided. There are now only 12 children over six months of age in Whycocomagh Village who have not been protected. While a few slight reactions were encountered in the older children, none were of a serious nature. It is the intention to Schick Test all children in Whycocomagh who have been inoculated.

Dr. A. E. Blackett—For the past five years Toxoid inoculations against Diphtheria have been carried out in the New Glasgow schools. The pupils of grades one only are treated. This means 100 to 120 are immunized each year. Babies attending the "Well Baby" Clinic are also receiving attention. Twenty-five of these were given protection during the past year. Five years ago, before Toxoid administrations were started, 1000 Schick Tests were

done which showed that 90% of the children were susceptible. During the past few years, Diphtheria has not been a problem in the town of New Glasgow.

Dr. G. V. Burton—In the year 1928 the town of Yarmouth experienced an epidemic of Diphtheria following which 400 children were inoculated with Toxoid. For the next few years many were given this protection by the family physicians. Since 1934 I have been immunizing the children in the schools, assisted by Mrs. Lewis, the school nurse. It is our endeavour to protect the grade one pupils, that is those beginning school attendance. Of this group 567 have been given 3 doses of Toxoid in the past three years. It is now much easier to gain the consent of parents than at the beginning; we however, experience difficulty in getting children to return for the second and third inoculations. No severe reactions have occurred. We originally did Schick Tests before giving Toxoid, but the procedure has been discontinued for the reason that so few negatives were found in this age group.

An interesting discussion followed which was participated in by several members. The doctors who related their experiences with Toxoid programs, were congratulated upon their contributions to the better health of their communities.

Dr. C. E. A. DeWitt stated that as a result of consistent Toxoiding in Wolfville since 1927, no cases of Diphtheria have been found in the children of that town in recent years.

The desirability of introducing alum precipitated toxoid was brought up and after some discussion pro and con; the Secretary, Dr. P. S. Campbell, gave a memorandum with claims for and against this preparation. In summing up, he pointed out that in the present state of our knowledge we are not justified in advising the use of the one dose alum precipitated Toxoid to replace the 3 dose plain Toxoid, which has been in use for some considerable time.

Some discussion by Dr. O'Neil, Dr. Burton, and Dr. MacLeod followed as to the efficacy of Whooping Cough Vaccine. The Secretary pointed out that two studies were now being made; one in Canada and the other in the U. S. A., on Sauer's Whooping Cough Vaccine. After completion of these studies the Department will be in a better position to advise relative to its introduction. In the meantime there would appear to be no harm in using it should the physician decide to do so.

The presidential address was given by Dr. F. F. Eaton. This took the form of an exhaustive paper on Scarlet Fever—its incidence, symptoms, complications, varieties, duration, diagnosis, treatment and prevention.

A request was made from the floor that Dr. Eaton's paper as well as Dr. Campbell's memorandum on Toxoid, be published in the BULLETIN.

The following officers were duly elected for the coming year.

President	Dr. P. E. Belliveau, Meteghan.
1st. Vice-President	Dr. H. J. Townsend, Louisburg.
2nd. Vice-President	Dr. R. A. McLellan, Rawdon.
Secretary	Dr. P. S. Campbell, Halifax.

COUNCIL.

Dr. M. G. MacLeod	Whycomagh.
D. W. F. McKinnon	Antigonish.
Dr. C. E. A. DeWitt	Wolfville.

P. S. CAMPBELL, M.D., Secretary.

Philadelphia and the Clinical Congress of the American College of Surgeons

Dear Mr. Editor:

There is ground for believing that on such a trip as this one sees what one wants to see. What I saw then and the impressions produced upon me may well fail to impress or to interest anyone else. However, since you have assumed the responsibilities that pertain to the use of the first person plural you have also the prerogative to give as short shrift as you wish to those whose use is restricted to the first person singular.

The pilgrimage was made for the purpose of attending the Clinical Congress of the American College of Surgeons which, this year, was held in Philadelphia. Dr. Donald C. Balfour of the Mayo Clinic was the retiring president and Dr. Eugene H. Pool, probably the best known of New York surgeons, president-elect. Vice-presidents are Dr. Emile Holman of San Francisco, and Dr. Geo. E. Wilson of Toronto. I have not the official figures of attendance but understand that more than three thousand surgeons registered, among whom were seven Nova Scotians, Doctors Atlee, Curry, MacDougall, O'Brien, Scammell and the undersigned, all Haligonians, and Dr. J. B. Reid of Truro.

Among the earliest impressions to come to one was that of the magnitude of their organization and the smoothness with which their clinical congresses are made to work; and coming hard upon that was the realization of the vast amount of study material that was provided. These things have, of course, been common to the other congresses that one has attended, and it would require, if one were to cover it all, three or four times the amount of time that is allotted to it. It was necessary each day to take the next days programme, pick from it those items which one preferred and plan ones time accordingly. In the mornings, clinically-minded men went to one or other of the many hospitals under levy for the occasion; in the afternoons it was either hospitals again or auditorium meetings for papers and discussions on clinical subjects, cancer organization, or hospital affairs; while in the evenings, after days that were invariably strenuous, the choice was between listening to some of the world's authorities on surgical subjects in one of the largest halls in Philadelphia, or playing hookey and going to a show and/or a night-club. Outstanding evening speakers were: Beck of Cleveland on Cardiac surgery; Sir James Walton, London, on biliary calculi; Smith-Petersen, Boston, on fracture of the neck of the femur; Wilson, Toronto, Shoulder fractures; Lahey, Boston, Hyperthyroidism; Shaw, Manchester, Cancer of the Cervix; Horsley, Richmond, Cancer of the Rectum and Sigmoid, and others. With such a galaxy of the great in Surgery the spirit was easily willing to go in the direction of the lecture-hall, and of course among surgeons the flesh is never weak! In addition to all those activities there was also throughout the day the never-ceasing click of movie projectors while modern operative technique was being screened. Some of the films were demonstrated by their makers in person as in the case of Lahey of Boston and his thyroidectomy films.

With such a plethora of material, clash of interest was sometimes inevitable. One simply—sometimes regretfully—could not be in more than one place at a time. However, such a variety of matter, in the main of very ex-

cellant quality, makes attendance upon such affairs very valuable to us. Because most of the teaching is from a background of wide experience and careful research, helpful ideas are contributed to the solution of our surgical problems, new methods are elaborated for the application of surgical principles, and sometimes what has appeared to have been sound surgical principles are found to bear re-stating. There is some tendency among us to set a low valuation upon some of our neighbour's institutions, and sometimes they are justified, as they themselves are quick to admit. I was here impressed however with the psychological value that accrues to its members from association with such a movement for the improvement of surgical and hospital practice as is represented by the American College of Surgeons; for there seems to be no doubt but that it has done more to raise the standard of surgery and of hospitals, with the inestimable benefit that that has meant to mankind, than has any other organization in the world.

The distinction of grey hairs comes slowly to me, Mr Editor, and reminiscence consorts best with them. Offering however, the few that I have, may I crave your indulgence? and I, in turn, shall engage to hold my reminiscing to comparable development. Though my introduction to Philadelphian surgery was only ten years ago, it is interesting, I think, to note some of the changes which have come about there in that short time. I met McCrae (of Osler & McCrae) and Gibbon, on that first visit, men who were of the finest flower of Medicine and Surgery. I also saw Deaver work, in his place at the Lankenau Hospital—a man who was easily the most colorful figure in that city. They have all gone; and the great levelling process that is seen everywhere—albeit an upward levelling—seems to have established as a fact that we shall not again see, in our time at least, any such development of medical and surgical giants who, like King Saul of old, will be seen to stand head and shoulders above their fellows.

But the changes were deeper than that. At that time operative technique was made the most impressive part of the work, and where the operator was a good enough showman, operative gymnastics were quite in order. That was only ten years ago, and today that is all gone. Good craftsmanship is still held to be among the essentials of a surgeons qualifications, but one was impressed with the great shift in emphasis from the operation itself to pre-operative and post-operative care, or, if you will, from "making the operation safe for the patient" to "making the patient safe for the operation". And that paraphrase of a statement from Lord Moynihan reminds me that, almost at the same moment, while I was standing in Deaver's clinic watching the glorification of surgical technique, Moynihan was addressing the Medical Society of London in his Harveian Lecture in the following words:

"In the future we must, I think, look for advance in surgery not so much to improved methods of operative technique as to a wiser application of methods now nearly perfected. It is therefore our task to improve surgical judgement and it is most necessary for us to devote a greater measure of attention to the preparation and aftercare of the patient."

The point of interest is that ten years later, almost at the moment when he is being "called from labour to refreshment" (Lord Moynihan died on Sept. 7th), I am again in Philadelphia, seeing in bold relief the fulfillment of his prophesy. Good craftsmanship is assumed, but to a high level has been raised clinical and laboratory research directed towards the determining of the values of patients in operative and post-operative probabilities, and toward

the raising of low values into the realm of safety. Of course the same change is going on all around us, and has been going on for a long time. We are ourselves part of it, but it was brought home very forcibly to me there by the strong contrast of present experience against an old impression.

Following from that, another impression came very forcibly to me. It has to do with the part which the universities and university hospitals are playing in this most desirable change. It took us only a very short time to find that if we wanted the best teaching in Philadelphia we must stick to the teaching hospitals—University Hospital, (Univ. of Penn.), Temple Univ. Hospital, Jefferson Medical College Hosp., and the Philadelphia General. The experience of some of our men at some of the non-teaching places was such as to make us utter the prayer of the Pharisee in thankfulness for our own blessedness. So marked was the difference between the teaching and the non-teaching hospital that some of us were constrained to think back to days and places not so far distant when hospital authorities, and at times the public, blind to the value of medical-school connection, barely tolerated it as an unmitigated nuisance. That too has gone.

But there were other impressions of Philadelphia which experience has not changed. They have to do largely with the city itself. To my mind Philadelphia, as an American city, is quite of its own kind. Without knowing any better, I would be inclined to regard it as still expressing its Quaker origin. It is quiet and restrained though happy and friendly. In most ways it impresses one as being the opposite of New York, happy in spite of, or because of the fact that it has none of the excesses that seem to go with life in the larger city. Even their most famous night-club—and my respected confreres who enjoyed “Kelley’s” in New York so well, would not like this—put on shows which could as well be put on in a Sunday-school—well, almost!

There is a sense of stability and soundness and permanence there that appeals to our British temperament and there is none of that speed and ebullient enthusiasm about things which characterize some of her sister cities; indeed one wished several times that they showed a little more speed, especially in the matter of the posting of their next day hospital programmes. Philadelphia probably has what you want, in Medicine as in other things, but you will have to bestir yourself to unearth it. No high-pressure salesmanship methods will be employed to “sell” it to you. It required my making my third trip there to realize the extent of those qualities and at the same time to comprehend the truth which lies behind the statement made to me by a well known surgeon in Montreal last winter. Speaking of medical education he said: “If I had a son studying Medicine, I wouldn’t care much what school in Canada he graduated from, but when he had graduated I’d give him a couple of years in Philadelphia.” Perhaps they have pure scientists there, but one seemed only to see the exaltation of the patient, and science only as applied to making the course of his illness smoother and safer. Put this expression of humanitarian motive and an acknowledged scholarship against a well-developed cultural background, and you have a setting rarely found and too rarely appreciated but one which makes our Montreal man’s statement quite significant, for that is Philadelphia.

May I now interject among these “impressions” a word on personalities. His classmates throughout the country and many another doctor who knew him in the position of assistant administrator to Mr. Kenney at the Victoria General Hospital would like, I am sure, a word on Dr. D. W. Hoare. Dan

has done very well in Philadelphia, where he holds the very responsible position of assistant medical director of one of America's large insurance companies, and those who knew him and his qualities here are not surprised that he has found so high a place. Apart from the effect of time, and very little of that, he is physically and maritally the same old Dan—kindly, modest and hospitable as ever. He had the whole Halifax contingent out to a very delightful dinner-meeting of the Canadian Society which seems to be flourishing there, and my own additional obligations are too great to recount. He appears to fill a very important place in American affairs but the savour of Nova Scotia and of Dalhousie about him is still quite distinct. Among the many things discussed, big "A.B.", a classmate, was the subject of special enquiry, as he is apparently of special regard. (Bear River papers please copy).

One feels that our medical friends in the United States are sad today because of the election of President Roosevelt. It was very difficult, in my experience, to find any of them who could entertain the idea of that as being a possibility with any degree of equanimity. The fear seemed to centre upon the regimentation of medical men in some form of state medicine as being almost certain to occur under President Roosevelt. The feeling was generally expressed that Medicine is moving along very satisfactorily under the natural stimuli that exist at the moment, and that any effort at control, which, it is felt, would be political control, would be an icy hand upon the system congealing its vital substance and setting back the clock of Medicine hundreds of years. Perhaps one would have to live among them for longer time to appreciate at all fully the cause for this mood, but that the feeling is strong is seen in the readiness and the vehemence with which otherwise mild and reticent speakers address themselves to the subject.

At a time when, to so many persons and families, medical service in their country is admittedly inadequate, it is to be hoped that some means will be found by which that need will be met and yet which will preserve that individual incentive, initiative and enthusiasm and that personal relationship which have meant so much to Medicine in all lands and to the people that it serves. If I were called upon to discuss the pros and cons of this matter, Mr. Editor, I would venture to offer the suggestion that Medicine does not preserve its present system by virtue of any divine prerogative, and that, in any event the greatest good should be considered as being for the greatest number. However, since I have only been asked for some impressions of my Philadelphia trip, I shall not do that.

Most obediently yours,

N. H. GOSSE.

Memorandum on Diphtheria Toxoid

P. S. CAMPBELL, M.D.

IN 1934 an article on the use of alum toxoid by McGinnis, Stebbins and Hart, of Virginia, appeared in the American Journal of Public Health. This article gave an account of their experiences with the preparation in the State of Virginia, and ended with the following conclusions—

1. "One dose of alum precipitated toxoid of a potency of 12.5 flocculating units per c.c. or greater produces over 90% immunity in known Schick positive individuals."

2. "There is not a significantly greater reversion to the Schick positive state in individuals rendered Schick negative by alum precipitated toxoid than in Schick negative individuals rendered Schick negative by natural causes or following other diphtheria immunization agents."

3. "Reactions following the administration of alum precipitated toxoid are not of sufficient severity to limit its use, nor are these reactions of greater severity than those following the administration of untreated toxoid."

As a result of this study and of the work of other American investigators in Alabama, New York and elsewhere, before and after; the one dose alum precipitated toxoid was recommended by some of these, as the preparation of choice for immunizing children against diphtheria.

In the June 1935 issue of the American Journal of Public Health, a Subcommittee on Evaluation of Administrative Practices of the American Public Health Association; consisting of Emerson, Freeman, Chapin, Dublin, Rice, Vaughan and Walker; gave a procedure for diphtheria immunization. The recommendations were based on studies of Dr. W. H. Park of New York, and were as follows:

1. "For infants of 6 months, one, one c.c. dose of alum precipitated toxoid."

2. "For children 6 months to 6 years of age, one, one c.c. dose of alum precipitated toxoid."

3. "For children over 6 years and for adults known to be susceptible,—toxin-antitoxin mixture in three 1 c.c. doses at intervals of 2 weeks."

All this, at first thought and on the surface, seemed rather convincing. There were, however, fallacies lurking in these investigations which were passed on to the conclusions—

First—All findings were based on the Schick test, over a short period of time only. This test is not the most scientific method to use in determining the antigenic effectiveness of a toxoid preparation.

Second—Sufficient time was not taken to see if a Schick made negative shortly after the administration of alum toxoid, one dose, would remain negative for an appreciable length of time.

Third—No information was available on the stability of the alum product under ordinary conditions of storage and handling.

Fourth—No doubt much of the Schick test material used did not conform to the standards laid down by the health organization of the League of Nations. Drs. Moloney and Taylor examined Schick test material prepared and distributed by fourteen different manufacturers in the United States and Canada, and all but one were found wanting in some one or other particular. It can easily be seen then, that the use of Schick test toxin, not properly standardized, leads to erroneous conclusions and a false state of security.

The first really scientific experiment to determine the effectiveness of alum precipitated toxoid was undertaken at the Connaught Laboratories, Toronto, by Dr. Fraser and associates, beginning in the year 1934.

It was realized that in order to determine the antigenic effectiveness of this alum precipitated toxoid on humans, it would be desirable to compare the effect of 3 doses of unmodified toxoid with one dose of alum toxoid prepared from the same unmodified toxoid, and further in the matter of testing the state of immunity before and after the administration, the method of choice would be the determination of the antitoxic titre of the blood serum of the persons injected.

A group of 98 Schick positive children was selected, blood sera of all showed less than 1/500 unit of antitoxin per c.c. before the administration of toxoid. 40 were given 3 doses of unmodified toxoid and 58 were given one dose of 1 c.c. alum precipitated toxoid, prepared from the same unmodified toxoid and containing 20 flocculating units per c.c. Ten weeks after and one year after, the bloods of both groups were again titred, with the following results—

After ten weeks in the case of those receiving the alum precipitation—38% had 1/100 of a unit or less of antitoxin and 62% more than 1/100: 70% showed 1/50 of a unit, or less and only 30% more than 1/50 of a unit. One year later 81% showed 1/100 of a unit or less, and only 19% more than 1/100 of a unit; 89% had less than 1/50 of a unit and only 11% more than 1/50 of a unit.

After ten weeks in the case of those receiving three doses of unmodified toxin, only 9% had 1/100 of a unit or less, whereas 91% had more than 1/100 of a unit. Assays at 1/50 unit level gave the same results.

In other words in the case of alum precipitated toxoid after ten weeks only 30% had more than 1/50 of a unit, whereas in those given the three doses of unmodified toxin, 91% had more than 1/50 of a unit. After one year in the case of thirty-two of the three dose group tested, 9% had 1/100 of a unit or less, 91% more than 1/100 of a unit and 69% of the group still had more than 1/50 of a unit.

Later an experiment similar to the Connaught Laboratories one was carried on by *Schuhardt* of the University of Texas and *Cook* of the Texas Hygienic Laboratories, with similar results. In this experiment the effectiveness of two doses of unmodified toxoid were compared with one dose of alum precipitated toxoid, with the conclusion that the response to two doses of plain toxoid is distinctly better than the response to one dose of the alum precipitated toxoid.

Another experiment recently completed by Dr. H. H. Pansing and Dr. E. R. Shaffer, Health Commissioner, Dayton, Ohio, is illuminating. (August American Journal). Here again the findings of Fraser of the Connaught Laboratories were confirmed so far as blood titres are concerned. It was further shown that 57.8% of a group of 549 children who were Schick negative

28 to 60 days after receiving one dose of 1 c.c. alum precipitated toxoid reverted to Schick positive after two years.

In a group of children given three doses of unmodified toxoid in Ontario, it was found that after three years 92% were Schick negative.

In the present state of our knowledge then, one is not justified in advising the use of the one dose alum precipitated toxoid to replace the three dose plain toxoid, which has been in use for some considerable time.

I might here interject that alum precipitated toxoid came into being as a result of work done by Glenny and associates in England in 1926, and it is significant that it has been used to a very limited extent only in that country.

It is well to remember that permanent protection will not be given to all persons with any toxoid know, and that even the 3 dose plain toxoid is not 100% effective; nevertheless the results obtained from its use would seem to be much superior to those following the use of the one dose alum precipitated preparation. There is an old principle in immunology, which still seems to obtain, and it is this—that divided doses of an antigen given at intervals will give a higher and more lasting immunity than will the whole given in one dose.

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DR. A. L. MURPHY, Halifax, N. S.

and the Secretaries of Local Societies

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

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THE purpose of the Nova Scotia Medical BULLETIN through the years of its existence has been the union, in common monthly form, of a profession scattered wide over the province. Most important of its recordings have official statements of society function, obituaries, historical sketches, personal news and editorials when they touched on the common interest. The Oxford Dictionary defines *Bulletin* as *a short report of public news issued by authority*. In this far has the BULLETIN fulfilled its purpose and given a real interpretation of its name.

To these duties the BULLETIN has added the presentation of scientific articles. This service has greatly increased the value of the journal to its readers. We sometimes feel that our contributors would be more worthily represented in a journal of national scope. It seems to us a matter for regret, that the provincial medical profession is so rarely represented in the scientific section of the Canadian Medical Journal. That this state exists tends, however, to swell the material offered for BULLETIN consumption, a situation of which we should not be the ones to complain.

The complaint we have to offer appertains to the section on case reports. A good case report need not look for birth to the involved labors of a trained medical mind as must a scientific article; no inspirational spermatocoele is needed for its conception. Every man, woman or child in this province with a temperature varying from 98.6 is a potential case report, corpus luteum, ovum and impregnating cell all in one, awaiting only the nurturing womb of a conscientious physician and the muscular contractions of a pen-grasping hand to give it birth.

We do not seek alone the oddities and rareties, the monsters and pre-maturities of abnormal conception, to be read with interest and stored back in the memory centres, perhaps never again to see the light of conscious thought. Rather do we wish those which are normal in their way of departure from health, normal but for a little variation here, an unimportant omission there, as if just one of the genes of our foetus had gone awry. Such a case, exciting no more than a mild interest in the mind of its recorder might so impinge itself on the perceptions of a reader as to incite that divine spark which leads

to new thoughts and new methods. Such a case, alone seeming of too little significance for record, might, with a hundred of its fellows, form a new stepping stone in diagnosis.

In our province are many hospital beds but, from the record keeper's point of view there are too many hospitals built around them. If the BULLETIN might act as custodian for the hundreds of cases which there must be, each year, worthy of record, so that the whole profession might have access to them, we believe that it would serve a purpose of far greater value than any it now carries on.

Uniformity in clinical methods must be present to some degree in a provincial group bound as closely as is ours. As new members tend to come, more and more from our own medical school this conformity of thought will become stronger. The value of the case record among clinicians working with similar methods is greatly enhanced. As an aid toward uniformity and to make the salient features of a case more quickly apparent to our reader we plan to publish a sample record, suggesting that it be followed in general outline.

We further suggest for the consideration of the Society, that a service might be established for providing special case history and examination forms to those desiring them. These would be prepared to facilitate the interrogation and examination of each type of case—neurological, thyroid, epigastric, pelvic, etc. The busy practitioner who lacks the time to take down a long involved history might welcome the opportunity of recording what would at least be memory stimuli for him in the form of *yes* and *no*, *plus* and *minus* to questions asked and signs observed.

If our ideal of case recording is worthy we humbly beg the co-operation of the Society. Our horizon may be broad: our real scope is limited to your contributions.

A. L. M.

Minutes of the Annual Business Meeting

Minutes of the first business session of the Medical Society of Nova Scotia, September 1st, 1936.

(CONTINUED)

The Secretary next read the report of the Historical Committee as follows—

“DR. R. M. BENVIE,
President, Nova Scotia Medical Society,
Stellarton, N. S.

Sir:

In submitting this report we desire at the beginning to express our deep regret for the sudden passing of the late Dr. Lewis Johnstone. He was the third Member of the Historical Committee and an active colliery practitioner for over half a century. His personal knowledge of Medical practice in the old days would have supplied the Committee with much valuable information. His death removes another of the old landmarks of our profession many of which have stood out as beacons of inspiration to those who follow in the discharge of their service to humanity.

At our first meeting during Christmas week at the Isle Royale Hotel, Sydney, all were present. We felt that each might make some contribution of a Historical nature confining our attention to Cape Breton Island. “The Early Practitioners” was assigned to Dr. Johnstone but now this work remains a task for other hands. “The Cape Breton Hospitals” was allotted to Dr. Morrison. This has turned out to be a much greater undertaking than was first anticipated and although much valuable information has been secured time does not permit to have it arranged in proper form for this Annual Meeting. “The Kings Hospital” at Louisbourg during the French occupation was the subject for Dr. Patton. A paper on that institution is here submitted.

Your Committee begs leave to offer the two following recommendations.

1. That the Nova Scotia Medical Society will undertake in the near future either by the appointment of a competent historian or in some other way the preparation of a complete history of the rise and development of Medical practice in this Province.

2. That the same Society will procure a suitable place, perhaps in the Archives Building at Halifax, and that such place will be made a Medical Museum. There is no doubt many old Manuscripts, papers, books, and much old Medical Equipment throughout the Province that could be collected and preserved. We urge this be done.

Respectfully yours,

(Sgd.) W. W. PATTON, Chairman,
J. C. MORRISON.

“Port Morien, N.S., Aug. 18, 1936.”

The Secretary stated that Dr. Patton's paper "Hospital Du Roy, Louisbourg" would appear in the BULLETIN, and that the Executive had recommended that a committee of three consisting of Dr. Patton, Chairman, Dr. H. L. Scammell and Dr. K. A. MacKenzie be appointed to carry out the suggestions contained in this report and to continue the work throughout the year. It was moved by Dr. Roy and seconded that the recommendation of the Executive be carried out. Carried.

In the absence of Dr. Archibald, the Secretary read the report of the Narcotic Drug Committee.

"August 24th, 1936.

DR. H. G. GRANT,
Secretary, Nova Scotia Medical Society,
Halifax.

Dear Sir:—

As Chairman of the Committee on Narcotic Drugs, I wish to state that no narcotic drug addicts were treated in the Nova Scotia Hospital the last year.

There are rumours that a Narcotic drug ring has been operating through ports of the province, and some suspicious cases of drug smuggling have been investigated by the Royal Canadian Mounted Police.

Respectfully submitted,

(Sgd.) D. W. ARCHIBALD,
Chairman, Committee on Narcotic Drugs."

It was moved by Dr. Smith and seconded by Dr. K. A. MacKenzie that this report be accepted. Carried.

PUBLIC HEALTH COMMITTEE. Dr. Burton, the Chairman, stated that this Committee had nothing to report, but that acting on the suggestion of the Executive last night, which had been that this matter should be given further study and recommendations brought before the general meeting, Dr. deWitt, Dr. Blackett and Dr. Burton had spent an hour discussing the matter. They decided to recommend that hereafter appointments to the Public Health Committee of the Medical Society would consist of the President and the Council of the Medical Health Officers Association, as they felt this would be a good move and link up the two organizations and would avoid any duplication of committees. It was moved by Dr. A. B. Campbell and seconded that this recommendation be received. Carried. The President read from the By-laws that the Committee on Public Health shall consist of five members, whose duty shall be to co-operate with official and unofficial agencies engaged in Public Health Work.

The Report of the Cogswell Library Committee was read by the Chairman, Dr. Corston.

"Halifax, August 1st, 1936.

To The President,
Medical Society of Nova Scotia.

The Committee on the Cogswell Library, who represent the Society in the joint committee for the administration of the funds of the Cogswell bequest,

beg to report that the proceeds of this bequest have as usual been paid into the account of the Medical Library of Dalhousie University.

The total expenditure upon this Library from all sources during the year 1935-36 was as follows—

Subscriptions to Current Journals.....	\$ 842.19
Purchase of back files of Journals.....	22.14
Purchase of Books.....	59.72
Cost of Binding.....	261.98
Incidental Expenses.....	104.52
Salaries of Librarians.....	891.66
Total.....	\$2,182.24

Of this total expenditure, the amount contributed by this Society was \$270.00; \$1,453.00 has been contributed by a special collection from members of Faculty, Board of Governors and Alumni of the Medical School; and the remainder from the general University funds.

The year has been one of financial retrenchment. A few of the most expensive special journals were cancelled. All clinical journals with a few exceptions have been continued.

No books were purchased except those on order previously. Only the most cumbersome clinical journals in frequent use were bound.

The use of the Library by the medical profession throughout the Province has been rather limited. A mimeographed list of titles of recent books was sent out, in July, 1935, to all names on the Medical Register of Nova Scotia. Up to date about thirty books and fifteen journals have been sent out to twenty-five addresses in the Province.

Respectfully submitted,

(Sgd.) J. R. CORSTON, Chairman."

Dr. Corston moved the adoption of this report, which was seconded by Dr. R. P. Smith, and carried.

The report of the Legislative Committee was read by Dr. Creighton, the Chairman, as follows—

"Lunenburg, N.S., June 19th, 1936.

DR. H. G. GRANT,
Secretary, Nova Scotia Medical Society,
Halifax, N.S.

Dear Dr. Grant:—

Regarding the Legislative Committee of the Nova Scotia Medical Society; there is nothing to report for the year 1935-36.

Yours truly,

(Sgd.) H. A. CREIGHTON."

Dr. Creighton moved the adoption of this report, which was seconded by Dr. Colwell, and carried.

The report of the Editorial Board Committee was read by the Chairman, Dr. Gosse.

"Report of the Editor-in-Chief of the BULLETIN.

Mr. President.

A year of moderate success and progress, from the editor's point of view, can again be reported.

It is recognized that not all of the twelve issues produced during the year displayed the high standard that is our ideal, but with the policy that has been employed, so that more of our members would be encouraged to write, that result is to be expected. But while it is true that, in pursuance of that policy, we have, on occasion, published material that has not come up to the highest standard of medical or literary purity, yet we are pleased to observe a very definite upward trend in the many articles submitted, both in scientific accuracy and in literary excellence.

While this has again elicited from points outside our own constituency comment that is most agreeable, we have not been blind to the fact that this Society has been disposed to regard it as being the major function of the BULLETIN, to be an instrument of cohesion among our members. It has been our greatest desire to have it so and therefore are obliged to deprecate the fact that the reports of the activities of our branch societies have so badly fallen off. This used to be a source of real interest and value to our readers, and the practice of having the secretaries of all branch societies report their meetings through the BULLETIN should not be allowed to drop.

Another department which could very materially be improved, to the better informing and to the delight of our members, is that of case-reports. It has been our pleasure to publish, during the year, some that were very good indeed; but the number could have been multiplied many times over from the very excellent material found in the different parts of this province. From the many comments which we have received upon this subject, it appears to be a fact that many of our readers derive more pleasure from a case-report than from other forms of scientific writing. The failure therefore, of members, to report their interesting cases is also subject for regret.

It has been our ambition to establish in the BULLETIN a small section of abstracts in which would appear short notes upon recent advances in the different departments of Medicine, as they would be reported in the current literature. Some work has been done upon this. During our last effort it was suggested that it could be accomplished if we were ready to pay for it, but as that spoke a language which up to now has been foreign to us, further discussion of the matter was deferred. It is to be hoped that our successor will be more fortunate.

Mr. President: We would like to make this the occasion for recording our appreciation of the assistance given by Doctor Corston and Dr. A. L. Murphy, our co-editors, of our secretary, Dr. Grant, who naturally carries the greatest load, for his unflinching co-operation, and to our publishers, The Imperial Publishing Company, for their many good offices.

To our contributors who have made the years issues possible and whose articles have so enhanced its prestige we would tender our warmest thanks, and may we bespeak for our successor the same encouraging support and kindly sympathy as has been the reward of the retiring editor.

(Sgd.) NORMAN H. GOSSE."

It was moved by Dr. Gosse and seconded by Dr. Williamson that this report be adopted. Carried.

The Report of the Provincial Medical Board of Nova Scotia was read by Dr. Scammell.

“Halifax, N.S., August 29th, 1936.

DR. H. G. GRANT,
Secretary,
Medical Society of Nova Scotia,
Halifax, N.S.

Dear Dr. Grant:

I beg to submit the following as a summary of the activities of the Provincial Medical Board during the past year.

Two regular meetings were held, the Annual on November 4th, 1935, and the Spring meeting on May 7th, 1936. The following matters of note were dealt with:

An offer of direct reciprocity in the matter of Medical Licensure with Italy was made to Nova Scotia through official diplomatic circles. After due consideration the offer was respectfully declined for the following reasons: (a) Because there was little benefit likely to follow for Nova Scotia through such a move and it might, if exercised by Italy, embroil this Province in difficulties with other Canadian Provinces having a larger Italian population; (b) Because if the need ever arose the said reciprocity could be obtained by Nova Scotians after they first registered with the General Medical Council of Great Britain.

The Hattie Memorial Book Shelf in the Cogswell Library was again supported with a contribution of Twenty-Five Dollars for the purpose of purchasing books.

In the early Spring of 1936, Dr. M. J. Carney was appointed a member of the Board by Order-in-Council, to replace Dr. C. S. Morton, whose term had expired some months previously.

In the Spring, twenty-nine candidates wrote the first part of the Final Professional Examinations and of these twenty-six passed in all subjects and were, therefore, eligible to continue in their Final Year. Supplementary examinations are being provided for the remaining three. In the Final Year there were also twenty-nine candidates of which three were unsuccessful. The remaining twenty-six, upon payment of the fees necessary, are eligible for registration. As several of these students are citizens of the United States and have returned to that country, it is highly unlikely that they will ever take advantage of this opportunity.

The Board has appointed Dr. J. G. MacDougall and Dr. H. K. MacDonald to be its representative on the Medical Council of Canada for a period of three years beginning on November 8th, 1936.

One of the most important matters entered upon by the Board during the year and one which is, as yet, unsettled, is the decision of McGill University to alter its Medical curriculum. The new regulations provide that ‘the minimum period of professional training required by the University as a qualification for the independent practice of Medicine shall be five years, including (a) four years of Medical study in the University leading to the degree of M.D.C.M. and, (b) one year of internship in an approved hospital, or one year of further Medical study in the Faculty of Medicine of McGill University or in another Medical school approved by it.’ The Board on considering this has noted with some degree of alarm that ‘one year of internship in an ap-

proved hospital' is to be used as a substitute for a regular annus medicus. The only basis for approval of hospitals in Canada is that laid down by the Canadian Medical Association in so far as training of internes is concerned. This is a relatively new departure on the part of the Canadian Medical Association and the hospitals so approved include those not in Medical teaching centres as well as those in such centres. There is no comparison between this proposal and that at present conducted at Dalhousie University, for example. In the latter, although the Final year is one of internship, the interne is still a student, subject to the regulations of the University and careful supervision is maintained by the University and directly of his activities during that year. At the end of it he must pass a searching examination before he receives degree or licensure. According to the McGill scheme, the candidate receives his degree before he begins his internship and we have no knowledge as to whether or not his year thus spent has resulted in any particular increase in his knowledge of Medicine. However, in spite of this, the Province from which this man comes will be asked to certify him as having met all its educational requirements and eligible, therefore, to write the Medical Council of Canada examinations. The Medical Act at present requires five years of Medical study in an approved school and the Board is, by every means in its power, endeavouring to learn of the future plans of the McGill University authorities in order that students of this Province now entering upon this new course at McGill shall not stand in a difficult position on completion of such a course. In all probability a satisfactory adjustment will be achieved and progress in this matter will be reported later.

As usual, a great amount of routine business at each meeting was conducted by the Board. It has been the earnest endeavour of its members, individually and collectively, to serve the Medical Profession of the Province by maintaining the highest standards possible for its new licentiates and to endeavour to maintain peace, harmony and good will amongst the Profession which it represents.

Yours faithfully,

(Sgd.) H. L. SCAMMELL, M.D.,

Registrar-Secretary-Treasurer."

It was moved by Dr. Scammell and seconded by Dr. H. K. MacDonald that this report be adopted. Carried.

It was announced by the Secretary that the reports from Dr. J. K. McLeod and Dr. G. W. T. Farish who had represented the Society on the Council at the recent meeting of the Canadian Medical Association in Victoria would be published in the MEDICAL BULLETIN.

In the absence of Dr. C. S. Morton the report on the Victorian Order of Nurses was read by the Secretary.

To the President and Executive
Of the Nova Scotia Medical Society.

"4th August, 1936.

Gentlemen:—

Re-Victorian Order of Nurses.

Again I respectfully submit a report of the activities of this Order in the Province of Nova Scotia.

The number of Branches in Nova Scotia, viz. 14, remains the same as last year, with nurses to the number of 34, and giving attendance to nearly

twelve thousand cases, with ninety-six thousand visits. Of this number the obstetrical cases amount to 1,859 with 14,417 visits; child welfare 9,964 visits; communicable diseases 3,041 and instructional visits 2,367, which entails a tremendous amount of work, and a very definite increase over any other year previously.

I want again to stress the fact that the V. O. N. does much more than obstetrical work, although 1,859 cases mean much work and nursing care. Each and every year this National organization is developing, and the medical profession realizing, this other and many sided V. O. N. work.

We do appreciate the work of the Order, but I think we as medical men have failed to appreciate the many and various avenues of nursing and teaching which the Order is doing and doing exceptionally well. It is and always has been my humble opinion that Public Health Nursing throughout the length and breadth of Canada should be under the immediate control of this National organization, eliminating all the abuses now present in other controls and enhancing the service from every standpoint. If we as medical men would acquaint ourselves of the complete organization of the Order we would better realize the marvellous structure back of the field nurse, making for the best there is in community service.

This province still requires much in nursing services such as is obtainable through the V. O. N. Let us all endeavour to provide such to the communities unfortunate enough to be without such.

Respectfully submitted,

(Sgd.) CHARLES S. MORTON."

It was moved by Dr. Grant and seconded by Dr. Kinley that this report be adopted. Carried.

In the absence of Dr. Webster the following report was read by the Secretary.

"Report of the Committee Investigating Nursing Conditions in N.S. and in N.S. Hospitals.

Owing to distance from one another the members of this committee have not been able to meet. Your chairman has written the other two members but has only received one reply.

Dr. Atlee, one of the committee, has given the question considerable consideration and has devoted much effort in attempting to unite the present four schools of nursing in the different hospitals in Halifax into one school, this school to be connected in some way with the Medical School of Dalhousie University and the teaching under its supervision.

This is an important question and deserves your careful consideration, as it requires cooperation with the different hospitals, Dalhousie University, and the N. S. Nurses Association to effect this advance in nursing education.

The Superintendent of the Yarmouth Hospital gives her views as follows.

The question as to whether a hospital of less than one hundred beds should have a Training School, can, I think, be answered by that particular hospital's financial and economic standing and also its affiliations.

In the case of Yarmouth's seventy-bed hospital with its excellent affiliations and competent medical staff, there is no doubt, that, from the standpoint of economy alone, it is the only logical solution.

The yearly salaries of an adequate Graduate Nursing staff, even if estimated as low as fifty dollars per month, would be a large amount of money to pay out for necessary nursing services, as compared with the small amount paid second and third year nurses, who, under proper supervision, can do the work quite as well as graduates.

The question as to whether the present course of study covers too long a period and embraces too many subjects may be answered by the demand of the doctors and the public for nurses who combine intelligence with the knowledge that only three years study and training in a good hospital can give.

It has been said that the rates charged by the Graduate Nurses are too high.

From the standpoint of the nurse they are not—they are only her just reward for three year's hard work with very little income.

From other standpoints, i.e. depression, scarcity of work, etc., it would seem feasible for the nurse herself to make out her bill according to the standard and then discount it in accordance with the patient's financial rating, rather than lose cases because people were unable to pay her the regular rate.

The Curriculum of Yarmouth Hospital consists of a course of lectures on different subjects by the different doctors; affiliated courses of three months in Obstetrics and three months in Infectious diseases; two months affiliation with a Tuberculosis Hospital; class-room work in Materia Medica, Anatomy and Physiology, Practical Nursing, Hygiene, Bacteriology, History of Nursing, Nursing Ethics and of course practical hard work.

The average number of hours per week per year for class-work and lectures is twelve hours, for ward work is forty-two hours.

The school has annual graduation exercises, the average number graduating six or seven. Probation classes of six are taken twice yearly.

The second and third year nurses average six.

Our average number of student nurses is twenty-five.

No doubt most of the Nova Scotia small hospitals are in the same position as Yarmouth Hospital, and feel the need of a training school for the same reasons.

(Sgd.) C. A. WEBSTER,
Chairman."

It was moved by Dr. Kelley and seconded by Dr. Williamson that this report be adopted. Carried.

As the report of the Workmen's Compensation Board Committee had not been received to date, it was decided to hold this matter over until Thursday night's meeting, when Dr. Lynch would probably be in attendance.

The President stated that the next item was the appointment of the Nominating Committee, and named the following slate: Dr. H. B. Atlee (Chairman); Dr. H. L. Scammell; Dr. Dan Murray; Dr. J. J. Roy and Dr. H. A. Creighton.

Dr. K. A. MacKenzie mentioned the sad news that Dr. D. A. Campbell had died suddenly that morning at his home in Bridgewater, and moved that the President and Secretary should take the necessary steps to send flowers and expression of sympathy, in the name of the Society, to Mrs. Campbell. This was seconded by Dr. Williamson and carried.

The Treasurer's Report was read by Dr. Muir as follows:

FINANCIAL STATEMENT

Medical Society of Nova Scotia

Year 1935-36.

Receipts.

July 2, 1935.	Balance cash on hand	Savings Bank	\$ 703.74	
	Current Account		1,514.11	\$2,217.85
	Annual Dues			2,497.25
	Receipts from Medical Bulletin			2,130.93
	Interest on Savings Bank			7.04
				<u>\$6,853.07</u>

Disbursements.

Cost of Medical Bulletin		1,877.07
Salaries		1,680.00
Travelling Expenses		84.70
Sundry Expenses		214.37
Cash on hand June 30, 1936.		
Savings Bank	710.78	
Current Account	2,286.15	2,996.93
		<u>\$6,853.07</u>

Profit and Loss Statement.

Dues	\$2,497.25	
Interest	7.04	
Medical Bulletin	253.86	
		<u>\$2,758.15</u>
Less Costs.		
Salaries	1,680.00	
Travelling Expenses	84.70	
Sundry Expenses	214.37	1,979.07
Net profit for year		<u>779.08</u>

Cogswell Library Fund

Medical Society of Nova Scotia

Year 1935-36.

Receipts.

Balance cash on hand	\$ 7.91	
Interest on Bank Account	2.76	
Income from Bonds	262.50	\$ 273.17

Disbursements.

Dalhousie University	270.00	
Balance cash on hand, June 30, 1936	3.17	273.17

Dr. Muir moved the adoption of this report which was seconded by Dr. Dunbar. Carried.

Dr. Muir suggested that those who receive the BULLETIN who are not members of the Society should at least pay the subscription price of \$3.00, which would help the Society out considerably. Dr. Smith suggested that we solicit these non-members, which was seconded and carried.

In the absence of Dr. Morse the Secretary read the Report of the Committee of the Medical Society of Nova Scotia on Care of Crippled Children.

President of N. S. Medical Society,
Halifax, N. S.

“Lawrencetown, N. S.,
August 25th, 1936.

Dear Sir:

Your Committee begs leave to report that the principal agency towards treatment of Crippled Children in Nova Scotia is the Junior Red Cross. From June, 1935, to June, 1936, the work has been carried on as follows:

The first Junior Red Cross Crippled Children's Clinic in Nova Scotia was held in Halifax in 1923. Since then, they have been held Spring and Fall in many places in the Province.

During the past year 20 Crippled Childrens' Clinics were held in Nova Scotia. A total of 441 patients were examined and 316 advised and treated.

Clinics were held at Windsor, Kentville, Digby, Yarmouth, Liverpool, New Glasgow, Antigonish, Sydney, Sydney Mines, New Waterford, Glace Bay (both hospitals), and one new Clinic was opened at Amherst.

In nearly every case, Clinics were held at local hospitals, and at many of these hospitals special bed and X-ray plates have been made for the Junior Red Cross patients. Clinics are open to all underprivileged crippled children up to sixteen years of age.

It is worthy of note that children are being brought into the Clinics at a much earlier age than formerly—some of the patients being infants—which shows that the parents are being educated to the fact that the younger a child is the more assurance there is of a complete cure of deformity.

If it were made a Provincial Regulation that all records of Births should contain a report of abnormalities, all children thus afflicted might be followed up and disabilities corrected, thus saving much future suffering and assuring a better citizenship.

(Sgd.) L. R. MORSE,
Chairman, Committee of N.S. Medical Society for
Crippled Children.”

The adoption of this report was moved by Dr. Scammell and seconded by Dr. Smith. Carried.

Dr. Johnstone stated that listening to the numerous reports of the various committees was very tiring, and he did not see why some scheme could not be brought into being whereby the Executive could bring in some concise report.

Dr. Corston moved that the incoming executive be instructed to consider the question of condensing the proceedings of the general meeting with due regard to general interest, and if necessary to take the necessary action to have the by-laws amended; that they be instructed to study the matter and bring in an appropriate proposal at the next annual meeting. Seconded by Dr. Johnstone and carried. Also that they consider the whole question of standing and special committees and recommend deletion of some committees.

It was moved and seconded that the Society adjourn at 10.45 P.M.

Department of the Public Health

PROVINCE OF NOVA SCOTIA

Office—Metropole Building, Hollis Street, Halifax, N. S.

MINISTER OF HEALTH - - - - HON. F. R. DAVIS, M.D., F.A.C.S., Halifax

Chief Health Officer - - - - DR. P. S. CAMPBELL, Halifax.
Divisional Medical Health Officer - - DR. J. S. ROBERTSON, Sydney.
Divisional Medical Health Officer - - DR. J. J. MACRITCHIE, Halifax.
Director of Public Health Laboratory - - DR. D. J. MACKENZIE, Halifax.
Pathologist - - - - DR. R. P. SMITH, Halifax.
Psychiatrist - - - - DR. ELIZA P. BRISON, Halifax.
Superintendent Nursing Service - - - MISS M. E. MACKENZIE, Reg. N., Halifax.

OFFICERS OF THE PROVINCIAL HEALTH OFFICERS' ASSOCIATION

President - - - - DR. F. F. EATON - - - - Truro.
1st Vice-President - - DR. P. E. BELLIVEAU - - - - Meteghan.
2nd Vice-President - - DR. H. J. TOWNSEND - - - - Louisburg.
Secretary - - - - DR. P. S. CAMPBELL - - - - Halifax.

COUNCIL

DR. F. O'NEIL - - - - Sydney
 DR. G. V. BURTON - - - - Yarmouth
 DR. R. M. BENVIE - - - - Stellarton

MEDICAL HEALTH OFFICERS FOR CITIES, TOWNS AND COUNTIES

ANNAPOLIS COUNTY

Hall, E. B., Bridgetown.
 Braine, L. B. W., Annapolis Royal.
 Kelley, H. E., Middleton (Mcpy. & Town).

Murray, R. L., North Sydney.
 Townsend, H. J., Louisburg.
 Gouthro, A. C., Little Bras d'Or Bridge, (Co. North Side).

ANTIGONISH COUNTY

Cameron, J. J., Antigonish (Mcpy).
 MacKinnon, W. F., Antigonish.

COLCHESTER COUNTY

Eaton, F. F., Truro.
 Havey, H. B., Stewiacke.
 Johnston, T. R., Great Village (Mcpy.)

CAPE BRETON COUNTY

Tompkins, M. G., Dominion.
 Fraser, R. H., New Waterford.
 Martin, H. J., Sydney Mines.
 McNeil, J. R., Glace Bay.
 McLeod, J. K., Sydney.
 O'Neil, F., Sydney (County), South Side.

CUMBERLAND COUNTY

Bliss, G. C. W., Amherst.
 Drury, D., Amherst (Mcpy.)
 Gilroy, J. R., Oxford.
 Stewart, Chas. E., Parrsboro.
 Eaton, R. B., River Hebert (Joggins).
 Walsh, F. E., Springhill.

**Communicable Diseases Reported by the Medical Health Officers
for the month of October, 1936.**

County	Chickenpox	Diphtheria	Cerebro Spinal Meningitis	Influenza	Measles	Mumps	Paratyphoid	Pneumonia	Scarlet Fever	Typhoid Fever	Tbc. Pulmonary	Tbc.-other Forms	V. D. G.	V. D. S.	Whooping Cough	Malaria	German Measles	Septic Throat	TOTAL
Annapolis.....	2	..	..	..	..	..	..	..	..	..	1	..	2	..	1	..	..	..	6
Antigonish.....
Cape Breton....	..	12	..	..	..	17	..	..	8	1	..	..	..	..	..	..	..	..	38
Colchester.....
Cumberland....	1	..	..	..	..	1	..	..	..	1	..	..	..	3
Digby.....	2	4	..	..	..	1	..	..	..	..	..	7
Guysboro.....	1	..	..	..	..	2	3	..	..	..	..	6
Halifax City..	4	..	..	..	..	..	..	1	1	..	..	6
Halifax.....	2	..	..	..	..	..	..	..	..	..	..	2
Hants.....	3	..	1	..	..	..	4
Inverness.....	..	1	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	5
Kings.....	2	..	..	..	1	..	..	..	..	1	..	..	..	..	1	5
Lunenburg....
Pictou.....	2	..	..	..	..	..	..	..	..	..	2
Queens.....
Richmond.....
Shelburne....
Victoria.....
Yarmouth.....
TOTAL.....	2	13	..	2	..	18	..	3	25	1	2	..	9	3	4	1	..	1	84

Positive cases Tbc. reported by D. M. H. O's. 17.

RETURNS VITAL STATISTICS FOR SEPTEMBER, 1936.

County	Births		Marriages	Deaths		Stillbirths
	M	F		M	F	
Annapolis.....	8	15	17	6	7	0
Antigonish.....	13	10	10	5	8	0
Cape Breton....	140	131	95	49	32	3
Colchester.....	25	25	25	7	10	1
Cumberland....	38	30	36	17	20	1
Digby.....	21	17	9	10	3	0
Guysboro.....	9	15	13	10	5	2
Halifax.....	122	109	82	45	44	23
Hants.....	12	17	25	6	4	1
Inverness.....	15	11	8	7	8	2
Kings.....	38	30	26	13	9	0
Lunenburg....	12	23	29	10	8	3
Pictou.....	33	39	34	13	19	0
Queens.....	15	15	14	3	4	0
Richmond.....	9	15	6	7	9	0
Shelburne....	7	9	13	3	3	1
Victoria.....	5	5	4	3	4	0
Yarmouth.....	18	23	26	5	9	1
	540	539	472	219	206	38

DIGBY COUNTY

DuVernet, Edward, Digby.
Pothier, H. J., Weymouth, (Mcpy.)
Doiron, L. F., Little Brook.

LUNENBURG COUNTY

Marcus, S., Bridgewater (Mcpy.)
Reh fuss, W. N., Bridgewater.
Morrison, L. N., Magone Bay.
Zinck, R. C., Lunenburg.
Zwicker, D. W. N., Chester (Chester Mcpy).

GUYSBORO COUNTY

Chisholm, A. N., Port Hawkesbury, (M.H.O. for Mulgrave).
Sodero, G. W., Guysboro (Mcpy).
Moore, E. F., Canso.
Monaghan, T. T., Sherbrooke (St. Mary's Mcpy.)

PICTOU COUNTY

Blackett, A. E., New Glasgow.
Chisholm, H. D., Springville, (Mcpy.)
Bagnall, P. O., Westville.
Crummey, C. B., Trenton.
Dunn, G. A., Pictou.
Benvie, R. M., Stellarton.

HALIFAX COUNTY

Almon, W. B., Halifax.
Forrest, W. D., Halifax (Mcpy.)
Glenister, E. I., Dartmouth.

QUEENS COUNTY

Ford, T. R., Liverpool (Mcpy.)
Smith, J. W., Liverpool.

HANTS COUNTY

Bissett, E. E., Windsor.
MacLellan, R. A., Rawdon Gold Mines (East Hants Mcpy).
Reid, A. R. Windsor (West Hants Mcpy.)
Shankel, F. R., Windsor, (M.H.O. for Hantsport.)

RICHMOND COUNTY

Digout, J. H., St. Peters (Mcpy.)

INVERNESS COUNTY

Chisholm, A. N., Port Hawkesbury.
Boudreau, Gabriel, Port Hood, (Mcpy. and Town).
MacLeod, F. J., Inverness.

SHELburne COUNTY

Brown, G. W. Clark's Harbour.
Fuller, L. O., Shelburne. (Town and Mcpy).
Wilson, A. M., Barrington, (Barrington Mcpy.)
Lockwood, T. C., Lockeport.

VICTORIA COUNTY

MacMillan, C. L., Baddeck (Mcpy.)

KINGS COUNTY

Bishop, B. S., Kentville.
Bethune, R. O., Berwick (Mcpy.)
de Witt, C. E. A., Wolfville.
Morash, R. A., Berwick.

YARMOUTH COUNTY

Hawkins, Z., South Ohio (Yarmouth Mcpy).
Burton, G. V., Yarmouth.
Lebbetter, T. A., Yarmouth (M.H.O. for Wedgeport).
Chiasson, B. I., (Argyle Mcpy).

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

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

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

Report on Tissues sectioned and examined at the Provincial Pathological Laboratory from October 1st, 1936, to November 1st, 1936.

During the month, 205 tissues were sectioned and examined, which with 20 tissues from 4 autopsies, makes a total of 225 tissues.

Tumours, simple.....	25
Tumours, malignant.....	26
Tumours, suspicious of malignancy.....	1
Other conditions.....	153
Tissues from 4 autopsies.....	20

Personal Interest Notes

THE BULLETIN extends congratulations to Dr. J. G. MacDougall on his new honour on having been elected a Governor of Dalhousie University. At the same time as Dr. MacDougall's appointment was made Mr. H. P. Duchemin, K.C., Editor of the Sydney Post Record, was also elected.

Quite a number of our Nova Scotian physicians journeyed to Philadelphia to attend the annual meeting of the American College of Surgeons. The Halifax group included Dr. J. G. MacDougall, Dr. W. Alan Curry, Dr. H. B. Atlee, Dr. N. H. Gosse, Dr. H. D. O'Brien and Dr. H. L. Scammell. From out of the City we know of Dr. J. B. Reid of Truro and Dr. D. W. Archibald of Sydney Mines. Dr. Archibald was elected to Fellowship during the annual meeting.

Congratulations to Dr. and Mrs. L. R. Meech of North Sydney on the birth of a son in October and to Dr. and Mrs. Robert F. Ross of Elmsdale on the birth of a daughter on October 26th.

Dr. L. M. Morton of Yarmouth recently addressed the local Council of Women on the subject of Narcotic Drugs.

We regret to learn that Dr. W. R. Dunbar of Truro has been seriously ill and trust that we shall soon hear of improvement in his condition.

Dr. Kenneth A. MacKenzie of Halifax recently attended the executive meeting of the Canadian Medical Association at Ottawa.

Dr. and Mrs. James J. Carroll of Antigonish were recent visitors to Halifax en route to Boston.

Dr. Grace Rice of Halifax has returned from a two weeks trip to Boston and New York.

The wedding took place on Saturday, October 3rd of Miss Ruth Bruce Skaling, daughter of Mr. and Mrs. Alfred Skaling of New London, Conn., and Dr. Douglas Kerr Murray of Liverpool. Dr. Murray is a graduate of Dalhousie, '35.

We regret to learn of the serious illness of Dr. Charles Elliot, Jr., of Halifax. Dr. Elliot has returned from the Victoria General Hospital, but is confined to his home.

Dr. W. A. Hewat of Lunenburg has returned from a short visit to New York where he attended several of the hospitals.

Dr. and Mrs. T. A. Kirkpatrick of Kentville were visitors in Saint John during October.

6 YEARS

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In 1930, when Emmenin was first announced by Dr. J. B. Collip as an orally-active water-soluble hormone of the placenta, little was known of the chemical nature of placental oestrogenic substances or of the important part they are now known to play in endocrinology.

Over six years have elapsed—striking progress has been made in the study of endocrine substances—yet the early description of Emmenin is as sound to-day as it was in 1930. Emmenin enjoys a prestige that only a truly successful clinical background can create, and the evidence of this clinical background is found in an extensive bibliography.\*

The original claims for Emmenin in the treatment of disturbances associated with menstruation have been amply confirmed. In symptoms of the menopause, in menstrual migraine and dysmenorrhoea, Emmenin may be relied on to produce a high percentage of satisfactory results and the simplicity of administration permits extended treatment without inconvenience or excessive cost to the patient.

\* Copy on request

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EMMENIN

Water-soluble

Orally-active

FOR

MENOPAUSAL DISTURBANCES

DYSMENORRHOEA

MENSTRUAL MIGRAINE

●

Emmenin is now offered in liquid form (original four ounce bottles) and in tablet form (bottles of 42 tablets) at substantially reduced prices.

AYERST, McKENNA & HARRISON, LIMITED

Biological and Pharmaceutical Chemists

MONTREAL

CANADA

The marriage took place at Halifax on Tuesday, October 6th, of Miss Martha Isabel Chase Riggs, R.N., daughter of Thomas Riggs of Charlottetown, and the late Mrs. Riggs, to Dr. John M. Stewart, son of Mrs. J. McG. Stewart and the late J. McG. Stewart of Pictou. The ceremony was performed by the Rev. Dr. C. M. Kerr at the home of the groom's mother on Lucknow Street. Following the ceremony a luncheon was served, and Dr. Stewart and his bride left for a short motor trip. Dr. Stewart, who has been practising at Upper Stewiacke for the past number of years, has recently been appointed to the Staff of Camp Hill Hospital at Halifax.

Dr. H. W. Kirkpatrick of Halifax has returned to the city after doing two weeks special post-graduate work at Columbia Medical Centre, New York.

Dr. T. A. Lebbetter of Yarmouth has returned from a visit to Boston, New York and Washington, D. C. At Washington Dr. Lebbetter was entertained by Assistant Surgeon-General Dr. Warren F. Draper.

Dean H. G. Grant of Dalhousie attended the meeting of the Association of American Medical Colleges recently held at Atlanta, Georgia.

At the recent meeting of the Royal College of Physicians and Surgeons held at Ottawa the degree of Fellowship was conferred upon Dr. Harry Stafford Morton, son of Dr. C. S. Morton of Halifax.

Dr. J. F. Macaulay of Sydney has returned from a class reunion at McGill University. It is forty years since Dr. Macaulay graduated.

Dr. J. Wallace Graham, son of the Rev. and Mrs. H. S. Graham of Musquodoboit Harbour, has recently been admitted to membership in the Royal College of Surgeons of London, England.

Nova Scotia Hospitals approved by the American College of Surgeons.

At the recent meeting of the American College of Surgeons the results of the inspection and rating of hospitals in Canada and the United States was announced. In Nova Scotia twenty-one hospitals were approved, seven receiving the "Class A" rating, and the remaining fourteen have been approved provisionally. The hospitals inspected and approved were:—

Highland View Hospital, Amherst.
St. Martha's Hospital, Antigonish.
Nova Scotia Hospital, Dartmouth.
Glace Bay General Hospital, Glace Bay.
St. Joseph's Hospital, Glace Bay.
Camp Hill Hospital, Halifax.
Children's Hospital, Halifax.
Grace Maternity Hospital, Halifax.
Halifax Infirmary, Halifax.
*Halifax Tuberculosis Hospital, Halifax.
Victoria General Hospital, Halifax.

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*Yarmouth Hospital, Yarmouth.

* Provisionally Approved.

OBITUARY

The BULLETIN regrets to learn of the passing of Dr. W. V. Goodwin who died at his home in Pugwash on Monday, October 26th. The Doctor had only been ill a few days and his death came as a great shock. Dr. Goodwin was born at Baie Verte, October 23rd, 1871, son of Eban and Elizabeth Goodwin. He received his early education in the public schools of that locality. Going to Normal College he graduated in 1890 after which he taught school for five years. Although a noted educationist he felt the call to enter the medical profession and entered Dalhousie in 1895. Graduating from there in 1899 he practised in Bass River, Colchester County, for eight years. He removed to Pugwash in 1907 where he has been ever since. He was a noted Oddfellow, a strong Conservative and a faithful member of the United Church. He is survived by his wife who was a Miss Victoria Evans of Fredericton, one son Arthur of the Aetna Insurance Company, Hartford, Conn., and one daughter, Jean, wife of Mark Gillis of Pugwash. The funeral was held from his home in Pugwash on Wednesday afternoon, October 28th, and was largely attended.

HEALTH INSPECTION


Within a few months, every hotel and restaurant employee having anything to do with handling of food, from the lordly head waiter at Montreal's swankiest hotel to the humble counter man in the city's cheapest "one arm," may have to produce a "health card" to hold his job. Premier Durplessis plans to legislate compulsory medical examinations for food handlers. Similar laws are in force in several other provinces. Periodic medical examinations would be required and any who fail to pass the tests would be discharged and black-listed.—P. E. I. Paper, Oct. 7, 1936.

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MEDICAL EFFICIENCY AND COMMON SENSE

Dr. Effler urges that the "trimmings" be eliminated and only the essentials provided in medical care.

By L. R. EFFLER, M.D.

It is high time we doctors begin to realize the distinction between medical care as a luxury and medical care as a necessity. If the rich still insist on "shooting the works" in medical diagnosis and treatment, that is their privilege and pre-supposes their ability and their desire to pay.

The indigent have been well provided for; the so-called great middle class is supposedly our immediate problem. Is the highly developed medical science of today beyond their ability to obtain? This is the burning question that has stimulated "reformers" to loudly demand a change in the present medical set-up.

The answer should not be difficult. We must supply medical service to fit the pocketbook in a way that there need be no sacrifice of medical efficiency. Obviously there should be less laboratory work, less hospitalization, less expensive drugs, and less of all dispensable accessories that increase the price of medical service and add little or nothing to their ultimate efficiency. We got along without the "trimmings" before, and good medicine was practised. The "trimmings" are only refinements that need not be added to every case but only to those individual cases where knotty problems present themselves. In a word, we must distinguish between the practice of medicine as a science and the practice of medicine as a pseudo-science.

There is no need in every case of thyroid disease, for instance, to have a full set of x-ray pictures taken of the intestinal tract, and, vice versa, there is no need in every case of manifest intestinal trouble to have an x-ray of the skull or of the sinuses. In the same way, there is no need for extensive and expensive laboratory analyses or high-priced consultation as a routine. In many cases, also, there is no need for the most expensive drugs where simpler and less expensive ones will suffice.

A "well-worked-up-case" does not necessarily imply every last extraneous detail, but only those details that are germane to the diagnosis and treatment. We have fallen into the habit of believing that scientific medicine demands all the "trimmings" when, in reality, it demands only the essentials. Even with the "trimmings," it can still be pseudo-scientific.

There is room for the exercise of sound judgment in medical practice so that the so-called middle class will receive only what is necessary. A fine sense of medical judgment along these lines will be a potent factor in reducing the "high cost of medical care."

If medicine is to be regarded as a luxury it can be found very expensive for those able to pay. If it is to be regarded as a necessity it can be made less expensive for those less able to pay. In either case, it still can be efficient. The pendulum has swung too far in the direction of pseudo-science. With our help to science and common sense let it swing back.—*Country Doctor.*

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POSTURE.

Posture or body mechanics is the mechanical correlation of the various systems of the body with especial reference to the skeletal, muscular, visceral and neurological systems. There is normal body mechanics when this mechanical correlation is most favourable to the function of these systems.

Posture may mean the carriage of the body in the upright position and the correct use of the body machinery in all circumstances.

Good posture is an active power, both physical and mental. It is the result of a counterplay of many reflexes and is governed by many cross pulls and by leverage power. Without this actual process the body is liable to more or less vertical collapse.

The correct standing posture is head erect, shoulders back, chest high, abdomen flat; in the dorsal region, the spine is slightly convex backward; in the lumbar region, it is slightly convex forward; the knees are extended, and the feet point straight ahead, with the insteps held up.

In faulty posture the body droops, the ordinary attitude of weakness or fatigue. The head is held down and forward. The shoulders are stooped. The chest lengthens, narrows, and drops downwards and becomes flat. The upper part of the abdomen is flat, while the lower part is protruding and sagged. Lordosis or flat back develops. The knees are hyperextended or flexed; the feet are pronated or flat. The body is out of balance. The upright position is maintained by constant muscular effort and muscular fatigue results.

The extrinsic causes of faulty posture are: incorrect clothing; sitting upon one foot; carrying books on one arm; rotation of the body at the school desk; defective vision or hearing, causing the head to be turned constantly to one side; torticollis; chronic cervical adenitis; neglected empyema.

The intrinsic causes of faulty posture are less obvious and less understood. The upright position requires strength and co-ordination of muscles with no laxity of ligaments. In poor posture there is general muscular weakness or loss of tone. This loss of muscle tone may be due to acute illness, prolonged mental or physical fatigue; poor hygiene; bad habits of standing and sitting. Poor posture may be caused by diseases of the spine, as in arthritis; or in the muscles themselves, as in infantile paralysis.

The greatest number of faulty postures is found in two classes of patients; the herbivorous type, with broad back and heavy build. Here the symptoms are due to the heavy weight of the body. The sternum is high, the chest full and round, the costal angle over 90 degrees. The abdominal organs are heavy. The bones are heavy. There is a great deal of adipose tissue. The disposition is phlegmatic placid. This is the stocky type.

The carnivorous type, shows a flat chest, costal angle less than 45 degrees. The thoracic curve is increased. The shoulders are curved forward. The lumbar lordosis is increased, the pelvis is more vertical, the sacrum more horizontal. The thighs and knees are flexed, the heels raised. This "slender" type has small bones, quick action, nervous disposition, "high strung."

In the treatment of posture cases, the postural difficulties divide themselves into head, shoulder-girdle, chest, spinal deviation, abdominal relaxation, and foot and leg pronation.

Corrective exercises for the improvement of posture necessarily grouped themselves into such a classification.

In order to avoid incorrect body position and the pull of gravity, the first work in localization is done in the lying down position, on a non-sagging

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surface. When the patient has gained a fair amount of control in the prone position, and some idea of the correct relation between the various segments of the body, exercises in the upright position are tried. From the very beginning, however, correct standing and sitting posture must be taught, even though all the actual exercises are performed in the lying down position.

This is the time of year when Bronchitis, Pneumonia, Influenza and other acute infectious fevers have their greatest incidence.

At the first sign of a "chill", or if sore throat be present, the application of Antiphlogistine is one of the best safety-first measures.

Not only does it help to ameliorate the local conditions, but it may be the means of inhibiting the onset of more serious consequences. However, if pneumonia, bronchitis, or influenza supervene, Antiphlogistine helps to moderate the severity of the attack.

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It is interesting to note that a fair average of the length of time an infant receives Dextri-Maltose is five months: That these five months are the most critical of the baby's life: That the difference in cost to the mother between Dextri-Maltose and the very cheapest carbohydrate, at most is only \$6 for this entire period—a few cents a day: That, in the end, it costs the mother less to employ regular medical attendance for the baby than to attempt to do her own feeding, which in numerous cases leads to a seriously sick baby eventually requiring the most costly medical attendance.

The teacher had labored long and patiently to teach little Arthur the points of the compass.

"When you stand with your face to the north, your right hand is toward the east, your left toward the west, and your back toward the south. Now tell me the directions. What is in front of you?"

After a thoughtful pause, little Arthur replied: "My stomach."

At a New Year's Eve dance the doctor addressed a pretty girl: "Ah, I've caught you under the mistletoe."

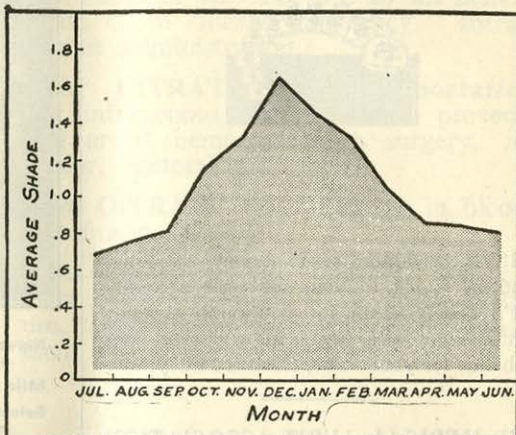
"No, doctor," replied the girl, as she released herself from his embrace, "there's only one thing you'll ever have a chance of kissing me under."

"And what's that?"

"An anaesthetic."

WEATHER FORECAST— HEAVY SMOKEFALL

SMOKE exerts a definite influence on the weather at this season by reducing the amount of sunlight. Beginning in September there is a steady rise in atmospheric pollution until in December it becomes double that of midsummer, according to a recent report of a two-year study made by the U. S. Public Health Service in ten of the largest American cities, representing a population of millions. One of the most surprising findings was that there is no decrease in the dust content of the air either during or after a rain.



Average atmospheric pollution in 10 large American cities, 1931-1933. It is probable that conditions are similar in many smaller cities especially where soft coal is used and wind velocity is low.

Winter Sunlight an Unreliable Antiricketic

Atmospheric pollution is but one of many forces militating against the therapeutic effects of ultraviolet rays in winter. Others, to name only a few, are cloudiness, precipitation, and clothing. In winter, moreover, it is often impracticable to give sunbaths to infants during the very time they are most susceptible to rickets—the first six months of life.

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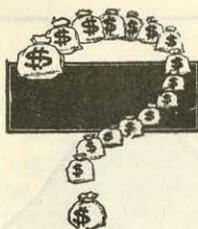
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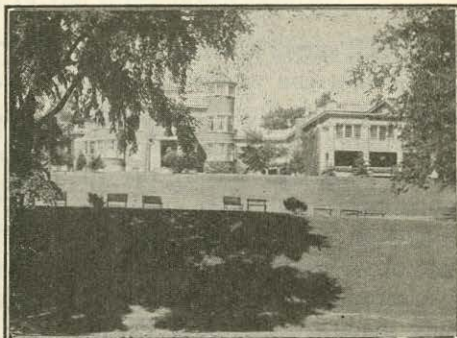
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