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Justice of Miscarriage

There are one million (give or take a thousand or so) cases of criminal abortion each year in the U.S.A., Lader¹ estimates. By the very nature of the problem it is impossible to be precise but even if his figures are twenty percent too high - the reverse probably holds - these are staggering statistics. Harrison estimates there are 250,000 criminal abortions each year in Canada.² The Canadian Almanac and Directory (1966) gives the population of Canada at June 1, 1965 as 19.5 million. If somewhat over half of these people were females and one half of these in the child-bearing age, this means that, if he is anywhere near right, every year one out of every twenty Canadian women undergoes a criminal abortion.

Alarmed by the magnitude of these and similar figures lawmakers and physicians throughout the world have demanded that we take a new look at the problem with a view to revising our criteria of what is legal and just. Laws are made for man, not man for the law.

Russia first legalized abortions on permissive grounds in 1920, but in 1936 the Soviet government reversed its policy and it was not until 1955 that abortions, this time mainly for health reasons, were again legalized. In both Sweden and Japan abortion is permitted for a wide variety of medical, humanitarian and eugenic conditions.

Elsewhere in this issue our Medical-Legal correspondent summarizes the Canadian Law relating to abortion and Dr. Smith outlines amendments which have been proposed by legal and medical bodies, as well as by the Federal Government.

It would appear that some revision of the present law is imminent and, as the medical profession will be intimately involved in any solutions proposed, it behooves us to make a searching inquiry of the subject.

In the law, a child does not become a person until he is born. This is a peculiar atavism which dates from the time of Aristotle who held that the fetus had vegetable life until the time of quickening when it became an animal and that it only became human at birth. The antiquity of this view may commend it to the legal mind but can hardly be expected to impress the doctor.

If we reject the legal view, as we must, we are thrown back on an infinite series of developments from fertilized ovum to full term infant, in which to pinpoint the stage at which the embryo becomes a human being: clearly such a point does not exist. The attributes of form and function representing humanity are acquired at various times during development as a continuous process and are by no means complete at birth. Even the adult continues to modify his form and function into old age.

If then abortion represents child murder, and we cannot dismiss this view by simply ignoring it, we must take a hard look at the arguments for permissive abortion.

Perhaps the most suspect are those which make appeal to the sorry lot of the unwanted child, and almost as frightening, those referring to the possibility that the fetus may be malformed. One wonders - how malformed? Two limbs missing? One? Six fingers? Perhaps our guess may be wrong and there is no malformation after all. Would it not be more practical to legalize selective infanticide?

Why do so many women defy the law? The Inter-Departmental Committee on Abortion in England found that there was an overwhelming body of evidence indicating that an economic reason of some sort was predominantly among the motives which led women to seek out abortionists and that illegitimate pregnancy was the second commonest reason.³ There are those who hold that no law, short of abortion-at-will, will significantly reduce illegal abortions.

This matter is so important and so fraught with medical-moral and medical-legal problems that the

Medical-Legal Liaison committee is arranging a panel discussion between two prominent members of the Nova Scotia Barristers Society and three from the Medical Society at our Summer Meeting in Digby Pines, Tuesday, July 4th.

We hope to see you all there.

I. D. M. □

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Medic-Legal Inquiries

THERAPEUTIC ABORTION AND STERILIZATION

Q: Where does the physician stand, legally, who performs (a) therapeutic abortion (b) tubal ligation (with consent)?

A: Therapeutic Abortion

Therapeutic abortion as a lifesaving measure is permitted in 42 states of the U.S.A. and 5 states permit abortion to preserve the health of the mother or to prevent serious bodily injury.¹ In Great Britain Section 58 of the Offences Against the Person Act, 1861 renders it a crime "to use unlawfully any instrument or other means to procure an abortion." In the case of *R. v. Bourne* (1938)² Mr. Justice MacNaghten reasoned that by the word "unlawfully," Parliament intended that in certain circumstances an instrument or other means might lawfully be employed for a like purpose.

Since 1939 English Case Law has been based somewhat tenuously on his ruling. In 1965 the British House of Lords passed by an overwhelming majority a Bill introduced by Lord Silkin to change the abortion laws but there has been widespread criticism of the proposed legislation. Mr. David Steel's **The Medical Termination of Pregnancy Bill** was carried in the British House of Commons by a 10 to 1 majority in July 1966 and has reached the committee stage. The British Medical Association, however, has taken exception to the so called "social clauses" which are incorporated in the bill.³

The situation in Canada is even less clear. Prior to 1955 Section 303 of the Criminal Code was worded almost identically to Section 58 of the British Act of 1861 and the case of *R. v. Bourne* was presumably applicable. In April 1955 the new Criminal Code was enacted and the new Sections 209, 237 and 238 which re-

placed Section 303 omitted the word "unlawfully". Lederman⁴ has expressed the opinion that the case of *R. v. Bourne* no longer bears any relation to Canadian Law. In his words "Canadian doctors who perform therapeutic abortions either labour in the mistaken belief that these operations are legal or mislead themselves with the belief that the law will not disturb them for their acts"

Not all medical-legal experts would agree with this extreme view and some maintain that the decision in *R. v. Bourne* would probably still hold in Canada.^{1,5}

As usual, Canada eventually arises from her torpor and follows belatedly the footsteps of other countries. This is not necessarily a "bad thing" because we can presumably thereby profit from the mistakes of others. The winds of change are freshening in two areas:

A. The C.M.A. Committee on Maternal Welfare (Chairman - Dr. M. G. Tompkins) has recommended that an amendment to the Criminal Code be enacted in Canada making it lawful for a duly qualified medical practitioner, with the approval of an Abortion Committee and the written consent of the patient and her husband or legal guardian to terminate pregnancy where: -

1. the mother's life or health is in danger,
2. the pregnancy has resulted from a sexual offence
3. there is a substantial risk that the child may be born with a grave mental or physical disability⁶

B. On January 24, 1966 first reading was given by the Parliament of Canada to an

amendment to Section 45 of the Criminal code (Birth Control) by Mr. Ian Wahn, M.P.⁷ This would exonerate physicians and nurses from conviction of an offence under Sections 209, 237 or 238 for terminating pregnancy under essentially the same conditions detailed above in para A sections 1 and 2.

This private bill was shelved in committee following the first reading and has not been heard of again. It is very doubtful that any action will be taken on private bills of this nature: a Government Bill will be required to achieve an alteration in the present law.

Tubal Ligation

The situation with respect to tubal ligation poses completely different problems. Sterilization procedures either in the male or female performed with the full permission of both parties to the marriage do not contravene the Criminal Code though they may transgress medical or religious ethics if carried out for social reasons rather than medical ones.

It would appear that it is essential to obtain permission from both parties to the marriage as sterilization by one spouse without consent of the other and without serious medical cause has been upheld as constituting grounds for divorce⁸. Doctors should also be aware of the British Columbia Supreme court ruling in **Murray McMurchy**⁹ in which damages of \$3000.00 were assessed against a

surgeon who ligated the fallopian tubes during Caesarian section with the prior consent of the husband but not the wife. Suit was brought by the wife on the grounds that not only had she not been consulted in a decision "depriving her of the possible fulfilment of one of the great powers and privileges of her life" but also that the husband in his implied consent to tubal ligation, had agreed to it if *necessary*, whereas the defendant had stated in his evidence that he had found it *convenient* to ligate the tubes during the Caesarian section, thereby avoiding a second anaesthetic and operation.

I.D.M. □

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Therapeutic Abortion --- Should The Law Be Changed?

DONALD F. SMITH, M.D.

Halifax, N. S.

There were 37,286 live births and 17 therapeutic abortions in Nova Scotia during the calendar years of 1963 and 1964. This is an incidence of one therapeutic abortion in 2,193 live births. During this period there were 3,464 women admitted to hospital in Nova Scotia because of all types of abortions; giving an approximate incidence of one spontaneous abortion per 10 live births (1)

Current Canadian Criminal Code Dealing with Abortion

The relevant law dealing with induced abortion is simple and is embodied in two sections of the Canadian Criminal Code. Section 237 (1) states: "Everyone who, with intent to procure the miscarriage of a female person, whether or not she is pregnant, uses any "means" for the purpose of carrying out his intention is guilty of an indictable offence and is liable to imprisonment for life. In Section 237 (3) "means" includes (a) the administration of drug or noxious thing (b) the use of an instrument and (c) manipulation of any kind.

Section 45 of the Canadian Criminal Code states: "Everyone is protected from criminal responsibility for performing a surgical operation upon any person for the benefit of the person if (a) the operation is performed with reasonable care and skill, and (b) it is reasonable to perform the operation, having regard to the state of health of the person at the time the operation is performed and to all circumstances of the case".

Medical Proposals

The basic belief and practice of the large majority of the medical profession in Canada is that termination of pregnancy is proper when it is performed not only to preserve the life of the mother, but also to preserve the physical or mental health of the mother. The majority of the medical profession cannot accept the doctrine that a human life which commences at conception has a right to live at the expense of the mother. The main objection to extending the grounds for legalized abortion to preserve the physical or mental health of the mother, comes from physicians and hospitals whose religious belief and policies do not approve or permit therapeutic abortions under any situation. The medical profession as a whole recognizes that moral principles and religious codes must be respected in any changes recommended. It must therefore be understood that any proposed changes should

be governed by no hint of compulsion to those individuals or hospitals where such principles and codes govern individual belief or hospital policy.(2)

Ontario Medical Association's policy regarding therapeutic Abortion

The following recommendations regarding therapeutic abortions were approved by the Council of the Ontario Medical Association in May, 1965(3):

"It is recommended that legislation be enacted to ensure that an operation for the termination of pregnancy is lawful in the following circumstances: (a) Where it is performed by a duly qualified licensed medical practitioner after consultation with and approval of a hospital appointed Therapeutic Abortion Committee, (b) and if performed in an active treatment hospital approved by a qualified Accreditation Board, (c) and performed with a written consent of the patient, with the consent of the spouse or guardian where where committee deems necessary, (d) and where the continuation of the pregnancy may endanger the life, or physical health, or mental health of the mother."

These same recommendations, however, when presented by the C.M.A. Committee on Maternal Welfare to the council of the Canadian Medical Association in June 1966, were referred back to the Committee for additional study.

A.M.A. Resolution

At the Annual Meeting of the American Medical Association in 1965 a resolution to petition state governments to allow physicians to terminate pregnancy in cases of mental or physical risk to either the mother or child, or if the pregnancy resulted from rape or incest, was not passed but was referred back to the American Medical Association Committee on Human Production.(5)

Canadian Bar Association Resolution Regarding Therapeutic Abortion:

The Canadian Bar Association passed the following Resolution regarding therapeutic abortion at its 48th Annual Meeting 30th August, 1966:

"Resolved:

That The Canadian Bar Association recommend to the Minister of Justice that the Criminal Code of Canada be amended so as to provide that an operation for the termination of pregnancy shall be lawful:

1. (a) if continuation of the pregnancy will endanger the life or health of the pregnant female or there is substantial risk that the child may be born with a grave mental or physical disability and the operation is performed by a duly qualified and licensed medical practitioner, in a hospital accredited by the Canadian Council on Accreditation, after approval by the therapeutic abortion committee of such hospital, or
 - (b) where there are reasonable and probable grounds to believe that a sexual offence has been committed from which pregnancy has resulted.
2. No operation for the termination of a pregnancy for the reason set out in Section 1 (b) hereof shall be performed unless an application has been made to and approved by a 'Termination Board' which means any special board duly established under any provincial statute, or by the Lieutenant-Governor in Council of a province to authorize the termination of a pregnancy
3. All hearings of any Termination Board shall be held in camera and evidence given before any such Termination Board shall not be admissible in evidence at any other proceedings except for the purpose of proving inconsistent statements by the pregnant female.
4. A full report of all applications for the termination of a pregnancy, whether made to the therapeutic abortion committee of a hospital or to a Termination Board, and whether or not such application is approved, shall be made to the Minister of Health of the province in which such application is made within thirty days of the decision of such committee or Board and shall include, inter alia, a statement of the findings and result of such therapeutic abortion.

And be it Further Resolved:

That The Canadian Bar Association recommend to the appropriate authority in each province that an Act be passed by the Legislature of that province to create a Termination Board in the following terms:

Section (1) - Name of Act - Termination of Pregnancy Act.

Section (2) - Description of 'Termination Board' - it is suggested that the Board be constituted by seven (7) members: Three (3) persons

qualified as medical practitioners, two (2) persons qualified as barristers and solicitors, and two (2) persons who are practising social workers having the minimum qualification of Bachelor of Social Work, all such persons to be appointed from time to time by the Lieutenant-Governor in Council who shall also name the Chairman thereof.

Section (3) - Quorum of the Termination Board to be any five (5) of its seven (7) members and the decisions to be arrived at by majority vote.

Section (4) - The condition of pregnancy can be terminated only with the written consent of the pregnant female unless the pregnant female is under the age of 21 years at the time of application or has been certified as mentally incompetent under the appropriate provincial legislation. In such instances the Board may require written consent from the parent or guardian as the case may be, and from such other persons as it deems advisable.

Section (5) - A pregnancy can only be terminated by a duly qualified medical practitioner when specifically so authorized by the Termination Board in a duly licensed hospital.

Section (6) - The Board may act on written reports or conduct such hearings as it deems advisable and may require witnesses to attend and give evidence under oath or to make representations to the Board by Affidavit.

All hearings of the Board shall be held in camera and communications, evidence or reports submitted to the Board shall not be admissible in evidence at any other proceedings except for the purpose of proving an inconsistent statement by the pregnant female in such proceedings. The applicant, the alleged offender and in the discretion of the Board any other interested person may appear with counsel.

Section (7) - The Termination Board to have exclusive jurisdiction and its decision to authorize or to withhold authorization to be final and conclusive and not open to review.

Section (8) - The remuneration of the members of the Board to be determined by the Lieutenant - Governor in Council."

The Federal Parliament

After a press release on April 10th, 1967 regarding the legality of 12 therapeutic abortions done in 1966 at the Woman's College Hospital in Toronto the matter was raised in the Parliament of Canada and Mr. Lester B. Pearson, the Prime Minister of Canada, stated that the Government was aware of the therapeutic abortion problem and had contemplated bringing in new legislation to parliament some time prior to July, 1967. He further stated that it may not be possible for new abortion legislation to be presented to parliament by July, 1967 because of the large amount of Government business which took precedence over such proposed legislation regarding therapeutic abortion.⁽⁶⁾

It would appear that finally the federal law dealing with therapeutic abortion under the criminal code is to be altered by a government sponsored bill. It is felt by many who have been interested in the legality of therapeutic abortion that only a government sponsored bill dealing with such legislation would be successful in passing parliament. It is hoped that such legislation will make legal therapeutic abortions which are performed if (a) where the continuation of the pregnancy may endanger the life, or physical health, or mental health of the mother, or (b) where there are reasonable and probable grounds to believe that a sexual offence has been committed from which pregnancy has resulted, or (c) where there is a substantial risk that the child may be born with a grave mental or physical disability. One would hope that the government when preparing revised abortion legislation also will refer to the above deliberations of the Canadian Medical Association and the Canadian Bar Association. □

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Mechanism of Action of Hormones

PART I

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Introduction

The maintenance of homeostasis in an organism is dependent upon the coordinated control of its component cells. Its ability to achieve stability in a changing environment is therefore governed by the 'microhomeostasis' within each cell. This remote cellular response to changes in a distant environment is mediated both by neural and endocrine mechanisms - the effector agents of endocrine function being termed hormones.

Historical

In common with most organ systems of the body, the initial description of hormone-producing organs and their abnormalities of structure or function was often followed by centuries of silence until the next significant contribution to knowledge was made. For example, it took 3,000 years to discover that the same clinical disorder, cretinism, could occur both with an enlarged gland and without a gland at all. Similarly, 1,600 years passed from the initial clinical description of diabetes until Thomas Willis summoned sufficient investigative zeal to taste the urine produced by a sufferer from the 'pissing evil'.

At the commencement of the present century, although there were excellent clinical descriptions of many endocrine disturbances, some of them barely improved upon subsequently, yet there was little scientific evidence concerning the metabolic defects occurring in these derangements. The past few decades have witnessed an explosion of knowledge concerning endocrine dysfunction, much of it confusing and contradictory, yet leading towards a better understanding of the basic mechanisms involved. The present paper will attempt to indicate some avenues along which investigation has proceeded in an effort to determine the basic mechanisms of hormone action.

General Characteristics

Although hormones belong to several chemical classes (proteins, peptides, aminoacid derivatives and steroids) certain general statements may be made about them.

None is believed to initiate reactions in cells *de novo*, i.e. the biochemical machinery of the cell responds by either increasing or decreasing the rate at which a critical, rate-limiting reaction may proceed, but all the necessary equipment for the performance of the reaction, and for its response to the hormone, is built into the cell during its differentiation.

None is secreted at a precisely uniform rate, some, like adrenal cortical hormones possessing a diurnal variation, others like insulin or aldosterone are produced at rates which are dependant upon the carbohydrate and sodium content of the diet.

All exert their effects in biocatalytic concentrations, but unlike inorganic catalysts, which are not influenced by the reactions they facilitate, the hormones are continuously lost to the body either by metabolic inactivation or by excretion. The net effect of these losses is that all the hormone-producing glands must continuously produce a certain basal, finite quantity of material to make up for the loss, and amounts more than this to fill the variable needs of the whole organism.

Although hormones are felt to be specific in their actions, yet they may be responsible for many different effects within the body. An example is oestrogen which promotes the appearance of secondary sexual characteristics, increases synthesis of contractile and other proteins in the uterus, increases synthesis of polysaccharides and affects the rates of glycolysis, respiration and substrate uptake into the cells. This multiplicity of effect underlines the concept that hormonal specificity resides less in the hormone itself than in the 'target cells'.

Aims and Difficulties in Investigation

The investigation of hormone function requires the study of several factors:

- The precise chemical structure and characteristics of each hormone.
- The details of biosynthesis, storage and release, including the stimuli for release and inhibition.
- The form in which it is transported and the nature of proteins participating in its transport.
- The identity of the cell constituent with which it reacts at molecular level.
- The method of interaction between hormone and cell receptor.
- The place of this cellular event in the vital economy of the whole organism.

This discussion is mainly directed at the events which occur between hormone and receptor cells.

It is important to stress the complexity of the problem of elucidating the actions occurring at cellular level, since a striking secondary effect of a hormone may be mistaken for its primary effect. A clear differentiation is required between the primary transaction between hormone and some specialized cell constituent with which it interacts and all other events that flow inevitably from the primary transaction because they are built into the very fabric of the cell.

For example, the primary action of insulin may be to increase the intracellular concentration of free glucose. Once the glucose gets into the cell it is oxidized at a rapid rate. During the course of its oxidation, adenosine triphosphate (A.T.P.), the reduced forms of the pyridine nucleotide coenzymes - nicotinamide-adenine dinucleotide phosphate (NADP) and reduced NADP (NADPH), acetyl CoA, alpha glycerophosphate and many other substances are generated at rapid rates. The availability of these materials may then influence the rate at which many other reactions proceed. Thus it is often possible to observe striking effects of hormones that may be far removed from the original interaction between hormone and cell receptor site. This distinction between primary and secondary effects is made because, firstly, it illustrates the difficulty of analyzing the mechanism of hormonal effects on cells, and secondly, it demonstrates that the hormone-sensitive cell has its own built-in mechanism which the hormone modulates but does not bring into being.

Mechanisms of Action

The search for understanding of basic mechanisms of hormone action began more than 25 years ago when Green postulated the hormone-enzyme theory. At that time the recognition that most of the chemical reactions of the cell are catalyzed by specific enzymes led to almost universal acceptance of the view that hormones exert their charac-

teristic effects by acting (directly or indirectly) to regulate the activity of enzymes, with widespread secondary effects upon cell function. With increasing sophistication and the recognition that the primary action must be differentiated from the subsequent secondary and tertiary reactions it became clear that as a universal mechanism adequate to account for the manifold activities of hormones, the view that they act by modifying enzyme activity in one way or another is but a restatement of the functional importance of cellular enzymes. The fundamental question posed is whether the primary action of a hormone in a responsive cell involves the direct interaction of hormone with a specific enzyme which serves as a receptor and, if so, how the resultant of the primary enzymatic reaction is coupled to enzymatic mechanisms in diverse effector sites in the cell.

The effect of a hormone in inducing enzyme activity and the subsequent secondary reactions, has been demonstrated in several cases. Epinephrine, glucagon and adrenocorticotrophic hormone (ACTH) all rapidly activate phosphorylase, a key enzyme in determining the overall rate at which glycogen is broken down.

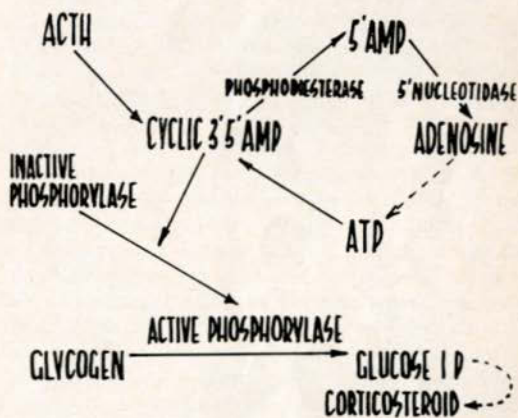


Fig. 1. Hormone Activation of enzyme systems.

As is shown in the schematic diagram (Fig. 1.), this action is potentiated by the formation of cyclic adenosine monophosphate (AMP) which in turn converts phosphorylase from the inactive to the active form. This then catalyzes the initial step in glycogen breakdown. Experimental evidence supporting this action was obtained by Haynes and Berthet who showed that in vitro ACTH caused accumulation of cyclic AMP in adrenal cortex slices, and that increased phosphorylase activity also followed ACTH infusions. Arterial perfusion of isolated adrenal gland with cyclic AMP stimulated a continuous secretion of hydrocortisone, the character and magnitude of which

was similar to that obtained by ACTH perfusion. Such data support the conclusion that an initial, possibly direct, action of ACTH in the adrenal is to stimulate the production of cyclic AMP, with secondary reactions terminating in the formation of corticosteroids.

Prior to 1949, an explanation for the impairment of glucose utilization in diabetes was sought solely in terms of an action of insulin on an enzyme-catalyzed step in the metabolic pathway traversed by hexose. However, convincing evidence of such an action failed to appear. Levine demonstrated in 1949, that the entrance of the non-utilizable sugar galactose into the cell was accelerated by insulin and argued that the same held true for glucose. He proposed that glucose was not metabolized because it could not enter the cell at a normal rate; that there was no fundamental lack of metabolic machinery - simply lack of available substrate. According to this concept insulin regulates glucose utilization by controlling its rate of entry into the cell. The cell membrane theory of action rapidly gained experimental support. The demonstration of this action on glucose transport required special experimental conditions, for under normal conditions hexose does not accumulate in the cell, but is immediately metabolized.

Park and his associates in 1955 designed and executed the crucial experiment. They incubated rat diaphragms at 10°C, a temperature at which the hexokinase reaction, the first step in the metabolism of glucose, is markedly slowed. Addition of insulin was demonstrated to induce a significant accumulation of glucose within the cells under these conditions, supporting the impression that insulin lack acts by preventing the passage of glucose into the cell where it can be metabolized.

A mechanism of the hypermetabolism of hyperthyroidism can be detected at subcellular level by its effect on mitochondria. When tissue homogenates are differentially centrifuged, the mitochondrial fraction prepared from the tissue of a chronically thyroxine-treated animal consumes more oxygen than does a similar fraction from a non-treated animal. This is due not to an increased level of metabolic activity of each mitochondrion, but to the fact that there are more mitochondria per cell. A similar correlation between metabolic rate and mitochondrial count may be seen in comparison of skeletal and cardiac muscle, the latter with a higher oxygen consumption having a much larger number of mitochondria.

In addition to its effect on the numbers of intracellular mitochondria, thyroxine also effects mitochondrial function by an alteration in oxidative phosphorylation. The mitochondria function as energy transducers, converting an electron flow into a chemical storage form of energy, Adenosine triphosphate (ATP). Usually a fixed ratio of

3:1 obtains between formation of ATP and oxygen consumption. Thyroxine-treated mitochondrial suspensions showed a depression of the phosphorylation/oxygen ratio, i.e. the process becomes less efficient, requiring more oxygen to produce a given amount of ATP. The net effect of this reaction is to produce less energy but more heat. The action of thyroxine in uncoupling oxidative phosphorylation is thought to occur by exerting a primary effect on the mitochondrial membrane, which can be readily seen on electron microscopy. Both thyroxine and tri-iodothyronine cause swelling of mitochondria, presumably by virtue of their effect on the permeability of the cell membrane to water and solutes. This change modifies the intra-mitochondrial environment in such a way as to produce uncoupling.

Protein Synthesis

The relatively recent emergence of molecular biology, with its spectacular achievements in elucidating the genetic regulation of protein synthesis, served to introduce the concept of cybernetics and information transfer in the control of cellular function and has had a profound effect on the investigation of hormone action. Not surprisingly, the currently fashionable concept of hormone action is that hormones produce their characteristic effect by regulating genetic programming which is expressed in terms of enzyme formation and consequent change in cellular metabolism. This idea, which may be designated the hormone-gene thesis, was first formally presented by Karlson and independently by Zalokar, and has stimulated much subsequent experimentation. Substantial evidence now exists that some hormones, particularly steroids, do in fact regulate gene activity in certain cell types. To many, the hormone-gene thesis appears to offer an attractive unifying conceptual framework for understanding the diverse metabolic effects of steroid hormones. It is important to have some concept of the basic features of gene function and protein synthesis; a brief review will therefore be given.

The specialized character of a cell depends on the type and quantity of proteins in it, therefore the process of cellular differentiation is basically the process of developing a specific pattern of protein synthesis. The genes of most organisms are composed of deoxyribonucleic acid (DNA), the chainlike molecules of which are made up of nucleotide sub-units. The genetic potentialities of mammalian cells are believed to be encoded as nucleotide base sequences in the DNA of the molecule, this genetic information being translated into aminoacid sequences of protein which determine cell function and structure. DNA contains four nitrogenous bases, thymine, adenine, cytosine and guanine, the variation in their order throughout the double helical chain of DNA molecule

acting as a coded message of four letters, the sequence of these letters spelling out the genetic message. Ribonucleic acid (RNA) molecules are presumed to differ from one another in a similar manner although RNA is only a single-stranded structure.

The importance of DNA in connection with the genetic function of the cell nucleus is indicated by several pieces of evidence. DNA is found in all nuclei, the relationship between DNA molecules and the estimated number of genes present being such as to suggest an equality of nucleic acid molecules to genes. The amount of DNA in each somatic cell is constant for a given species, but the amount in the germ cell - which has only half the number of chromosomes - is half that of the somatic cell.

The process of protein synthesis results from the convergence of two biochemical pathways.

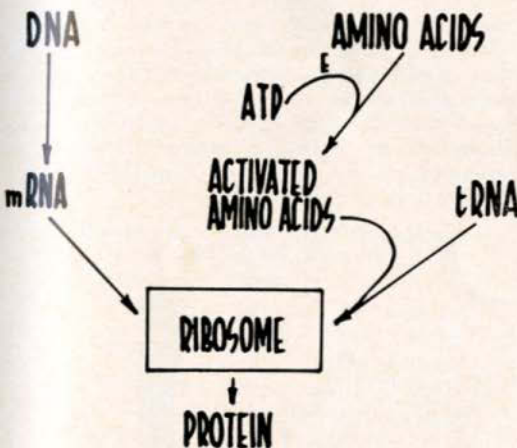


Fig. 2. Pathways of Protein Synthesis.

One originates in the nucleus where DNA, by separation of specific regions of its molecule, directs the synthesis of three functionally and structurally distinct types of RNA - messenger, transfer, and ribosomal RNA. Messenger RNA (mRNA) carries the coded information necessary for the synthesis of a specific protein molecule. It migrates out of the nucleus by way of the endoplasmic reticulum to become attached to a ribosome where it forms a template with a specific arrangement of components. The second pathway supplies aminoacids in a form usable by the ribosome. This requires their activation which occurs by a reaction between the aminoacid and ATP in the presence of an aminoacid-activating enzyme (E). These activated aminoacids are then joined by a further form of RNA, a soluble form known as

transfer RNA (tRNA) which occurs in some 20 forms, one for each of the commonly found amino acids. The role of tRNA is to 'recognize' and transport specific aminoacids to the ribosome where they are 'lined up' in sequence corresponding to the pattern of mRNA. When the particular sequence is achieved, neighbouring aminoacids join together by forming peptide bonds and protein synthesis results.

Control of Protein Synthesis

A further problem which requires explanation in connection with the action of hormones at the genetic site is the selective activation of certain genes within the body by a specific hormone. Each differentiated cell in a many-celled organism contains a complete set of organism's genes, but only a small fraction of the genes are functioning at any one time. For example, the assortment of genes active in a liver cell is not the same as those active in an adrenal cell, and it is obvious that the characteristics of a cell result from this variability of gene activity.

Experimental physiologists have proposed a theory which they feel explains both the specificity of gene activation and a unifying mechanism of hormone action. What may be termed the 'theory of repression' was advanced by Jacob and Monod, who stress that the key to genetic regulation is the need for *repression* of enzyme-making genes, since all the genetic information potentially available to the cell is neither expressed nor, indeed, required at any particular time. They postulate that repressive regulation is achieved by a set of macromolecular repressors which are produced by 'regulator genes' whose function is to inhibit the 'structural genes' which, by formation of mRNA, direct protein synthesis.

Repressors form different types of complexes with small molecules which serve as 'inducers' or 'co-repressors', modifying the repressor molecule so that repressive regulation is either removed or facilitated. The activity of a particular structural gene may be either silent or expressed depending upon the relationship of the structural gene and repressor. The complex composed of operator gene and the related structural genes which it controls have been designated an 'operon'. Induced synthesis of a set of specific protein enzymes is achieved when a repressor molecule (R) is inactivated by combining with an inducer (I) so that a group of messenger RNA's are synthesized by the operon to provide information for the controlled synthesis of the enzymes.

The molecular nature of repressors, co-repressors and inducers has not been established. An initial thought was that transfer RNA when not charged with aminoacids might function as a repressor, derepression occurring upon formation of tRNA-aminoacid complexes. Histones were

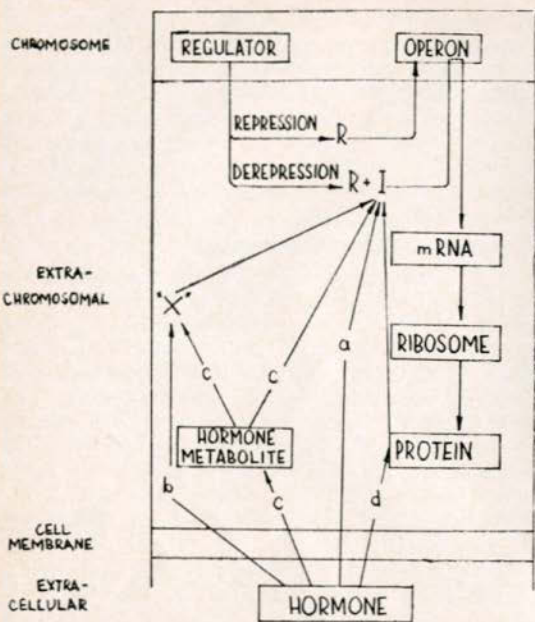


Fig. 3. The possible sites of hormone participation in the control of protein synthesis.

also considered as possible repressors but this is unlikely when the high degree of specificity required is compared to the comparatively narrow heterogeneity of this class of proteins.

The concept of repression allows several possible sites of hormone participation in the regulatory mechanism. As is shown in the diagram, (Fig. 3) the regulator gives rise extrachromosomally to repressor (R), and "induction" is illustrated as the combination of R with an inducer (I) to form RI, a derepressor, which allows the operon to express itself by production of mRNA. A possible site of hormone action might be that indicated as route (a) in which the hormone itself serves as the inducer (I). However a variety of indirect alternative routes exist, some of which are illustrated. The hormone may react with some further extrachromosomal substance (X) which then affects the generation or release of I (route b), or it may require the hormone to be broken down, the resulting metabolite either acting as I or causing its release (route c). Alternatively, hormone might act as the ribosome, altering the transcription of mRNA with production of an abnormal protein which feeds back to induce derepression (route d). Combinations of these and a variety of other possibilities could produce a set of diverse control devices which converge on I, the critical switch for genetic control. □

Conclusion of Part I: Part II will appear in the N.S. Medical Bulletin Vol 46, No. 7, July 1967.

Our clinical experience confirms the findings of a growing body of workers in the United States and Europe who have used this substance over a period of time approaching three and a half years . . . This new preparation appears to be a safe and clinically effective therapeutic agent in situations in which parenteral iron is indicated.—Dorothy C. H. Ley, M.D., B.Sc.(Med.), F.R.C.P.(C) Toronto and S. C. Robinson, M.D., Halifax, N.S., Canadian Medical Association Journal, August 8, 1964. —reprints of complete article and full Jectofer disclosure available on request.

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EARLY IN PREGNANCY
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Summer Meeting

The Pines, Digby, N. S.

July 1st, 2nd, 3rd & 4th

Registration for the second meeting is expected to start on Friday evening, June 30th, and those assembled may meet informally for conversation and films. (incidentally, the C.M.A. Centennial Project, "A Century of Canadian Medicine" will be shown during the meeting). It is hoped that the Presidents and Secretaries of the thirteen branch societies can meet on Saturday morning and a Welcoming Party is planned for Saturday evening. The P.S.I. Committee will have a meeting on Sunday morning; Executive meetings will be held on Monday and Tuesday mornings.

So much for business meetings! The primary function of the recently initiated summer meeting is relaxation and enjoyment for doctors and their families. With this in mind the afternoons of Saturday, Monday and Tuesday have been kept open, as has all day Sunday, for golf, boating and other activities as desired by the members. Erno Reti and his musicians will be with us on Sunday and Monday evenings and the lobster-boil is planned for Monday night. Especially for the ladies, there will be coffee and sherry parties in the mornings and arrangements are being made for a demonstration of metal and jewellery handcraft.

Panel discussions will be held on Monday and Tuesday mornings and some of the sections are planning meetings during the get-together. So far these matters have not been finalized but a happy mixture of fun and games, clinical instruction, and information for the profession is anticipated.

Last year's, first Summer Meeting was an outstanding success and the large turnout seemed ready for a meeting of this type. Incidentally, we plan to have information on the prospects of a 1969 spring meeting in Bermuda!! So, come July, plan to have another holiday with your family and confrères and help solidify the summer meeting as an event not to be missed. See you there!

G. McK. Saunders,
President, Medical Society of Nova Scotia

"G.P's. or F.P's."

DONALD C. BROWN, B.Sc., M.D.

Amherst, N. S.

The growing interest of General Practitioners in their organization and continuing post-graduate education was shown by the attendance at the Second Conjoint Scientific Assembly of the Maritime Chapters of the College of General Practice, held in Charlottetown in October 1966. This highly successful meeting was a blend of practical medical information on the one hand, centering around case presentations by family physicians ably discussed by visiting specialists, and a social programme on the other hand, with most enjoyable entertainment. On the local scene a very active membership committee has brought about an increasing enrolment of new members in the Nova Scotia Chapter of the College of General Practice of Canada.

Throughout the world literature there have been many recent references to the changing image of the General Practitioner. Undoubtedly, a major factor in changing this image has been the increasing trend of specialization over the last thirty or forty years. Starting with surgery and internal medicine, and progressing through the five main disciplines of medicine, we now have at least twenty-four sub-specialties with additional sub-specialty areas being continually defined. This change, itself the result of the tremendous mushrooming of medical knowledge, has had a profound effect on the context of general practice and on the role of the family doctor in the provision of medical care.

In a report from the Second International Conference of Colleges and Academies of General Practice and Equivalent Organizations in Salzburg Dr. Donald I. Rice reports, "It is my view, that this difficulty can only be overcome by destroying for all time, the old concept of the general practitioner as one who is a 'jack of all trades and master of none', and replacing this concept with quite a new and vital role for the modern day general practitioner, and for the projected practitioner of the future".

"Family practice relates to the *function* of the practitioner, while *general practice* refers to the *content* of his practice" states the Willard Report, and it should be noted that effective with the July 1967 issue, the journal of the College of General Practice will appear under the name of "The Canadian Family Physician", and with a completely new format. The National Executive Committee, in authorizing this change, also formed a Special Committee to investigate the desirability of changing the name of the College of General Practice of Canada.

The Canadian Medical Association has held two national meetings of its Special Committee on Family practice, which were attended by delegates from the section of General Practice of Nova Scotia. These meetings, a report of which appears elsewhere in this issue, resulted in a recommendation that action be taken to rename each Provincial Section "The Section of Family Physicians".

The executive of the Nova Scotian Section of General Practice meeting in Truro on February 5th 1967, decided to take the opportunity offered by the summer meeting of The Medical Society of Nova Scotia to convene a meeting of the Section at Digby in July.

Among the items for discussion will be (1) the question of renaming the Section of General Practice, (2) ways of increasing the percentage of general practitioners participating in local, Provincial and National Executives and Committees, (3) whether Executive and Committee members of the Section of General Practice should be reimbursed expenses incurred and mileage in attending meetings, and (4) committee reports, especially that of the Canadian Medical Association Special Committee on General Practice.

Any general practitioner who wishes to make his views known should try to attend this meeting, since we now have an effective means of representation through the Council of The Nova Scotia Medical Society to the Canadian Medical Association as well as direct representation to the Special Committee of General Practice of the Canadian Medical Association. Make this Second Annual Summer Meeting an even greater success than the first by planning to come, with your families, to Digby Pines in July. □

Salaried Physicians

"A Meeting of the Section for Salaried Physicians will be held at the Pines, Digby, on July 2nd, at 7.30 p.m. Since very pertinent matters are to be discussed, all salaried physicians are urged to attend."

G. P.'s Organize Nationally

(A Note on the Formation of the C.M.A. Special Committee on General Practice).

NORMAN G. GLEN, M.B., ChB., D.R.C.O.G., M.C.G.P.

Amherst, N. S.

It is the feeling of many Canadian G.P.'s that, as the College of General Practice of Canada concerns itself only with educational matters pertaining to General Practice, there has existed for some time a need for some organization to deal with the socio-economic and political aspects of General Practice, on behalf of General Practitioners.

Although General Practitioners take part in the activities of the Provincial Medical Societies, or C.M.A. divisions, study of the percentage of G.P.'s, as opposed to Specialists, in positions in these bodies does not reflect the fact that General Practitioners comprise 51% of the Medical population and are the largest single group of practising physicians. This low rate of G.P. participation is reflected at the national level. The percentage of G.P. participation in National Committees is only 22.9%, in Executive Committees 18%, and in C.M.A. committee chairmen 13.4%.

In Nova Scotia, we have had a Section of General Practice existing on paper for several years, but it has been inactive until recently. This state of affairs has existed in other provinces, with the notable exceptions of Manitoba, Saskatchewan and Alberta, where the Sections, or their equivalents, have been of real service to the G.P. Now the Sections, which have been lying dormant like our own, are experiencing a resurgence of activity under the leadership of the G.P.'s of the West, spurred, no doubt, by the prospect of Medicare.

In Quebec the position is quite different from that in other provinces and is complicated and confusing. There are multiple G.P. organizations in that province, often in competition with each other, so there is no single voice in Quebec for the G.P.'s.

In June of 1966 a group of G.P.'s from Manitoba approached the Executive of the C.M.A., meeting in Edmonton, requesting that the C.M.A. authorize a National meeting of General Practitioners from across the Dominion, so that the matters referred to above could be considered from a truly National point of view. The C.M.A. Executive accepted this proposal and, accordingly, a meeting attended by two G.P.'s from every province to represent each Provincial Section of General Practice, was held at C.M.A. House in Toronto in September, 1966. The following resolution, which

was adopted at the end of this two day meeting, embodies all the main view points put forward.

"WHEREAS it has become evident that problems in the socio-economic and political sphere as relating to the General Practitioner exist;

AND WHEREAS it is evident that there is a lack of communication between Provincial bodies of General Practitioners and their equivalents;

BE IT RESOLVED this meeting recommend to the Executive Committee of the C.M.A. that a Special Committee on General Practice be formed as soon as possible;

AND FURTHER that the composition of this special Committee be as follows:

1. A chairman,
2. Two representatives selected by each Provincial Division's Section of General Practice,
3. and others invited at the request of the Chairman with the approval of the Executive Committee of the C.M.A."

It was further suggested that the Committee meet at a National level at least twice a year.

The meeting went on record, (and this is important), as emphasizing that matters pertaining to education in relation to General Practice should continue to be the responsibility of the College of General Practice of Canada. Nova Scotia G.P.'s should understand why a "Special Committee" on General Practice was recommended at this time. The alternatives, within the structure of the C.M.A., would be a Standing Committee, a Section, or an Associated Organization. The first could not be formed until appointed by the Council of the C.M.A. at its next annual meeting, a year away; hence it was felt that this alternative was too slow. The other alternatives, a Section or an associated body (similar to the relationship between the College of General Practice and the C.M.A.), would be elaborate organizations requiring a full executive, National dues of their own and so on, and would be too top heavy and slow. A "Special Committee", on the other hand, could be formed immediately by the Executive and if necessary could be converted into a standing committee or one of the other organizations in the future.

This recommendation was approved by the C.M.A. executive on September 10th, 1966 and the first meeting of the Special Committee was held in Montreal on December 5th and 6th.

The terms of reference for this Special Committee on General Practice are as follows:

1. To improve communications between Provincial Sections of General Practice, other members of the profession and the public.
2. To ensure adequate G.P. representation on Divisional and National C.M.A. Committees.
3. To provide the views of G.P.'s in socio-economic and political matters as pertaining to General Practice.
4. To uphold the interests of G.P.'s in respect to fee schedules.
5. To provide liaison with other G.P. Organizations such as the College of General Practice of Canada and the *Federation des Omnipraticiens du Quebec*.

Methods of Strengthening Provincial Sections of General Practice

The Committee felt that the aim should be 50% G.P. representation at both Provincial and National levels (bearing in mind my previously quoted statistic that G.P.'s comprise 51% of the medical population). It was suggested that the Executive of each Provincial Section of General Practice draw up a list of G.P.'s interested and willing to serve on Provincial and National Committees, and submit this list to their Provincial nominating committees for their guidance in appointing members of committees. Sections were asked also to encourage G.P.'s to take a larger part in debates at the provincial level. An approach is also to be made to the C.M.A. to ask that body to request G.P. representatives from the Provinces on a greater number of National Committees.

Members of the Special Committee undertook to review the minutes of certain C.M.A. committee meetings on matters related to General Practice, to pick out items of interest regarding G.P.'s and to report these to the Special Committee.

The Committee felt that a big factor in strengthening G.P. spirit at the provincial level was the development of the concept of "equal fee for equal service". In this regard the following resolution was carried unanimously:

- "WHEREAS a family physician performing any medical service assumes the same responsibility as any other physician;
AND WHEREAS use of a double or differential fee tariff projects an image of two standards of medicine;
AND WHEREAS a single fee schedule increases the effectiveness of the Specialist as a consultant and also eliminates unnecessary

costs in cases not requiring Specialist's care;

BE IT RESOLVED

1. that this committee is unanimously opposed to any system which proposes a double or differential fee schedule.
2. That this committee unanimously endorses the principle of a single fee schedule in each province, a fee to be paid in relation to the service performed and not to the person performing the service.
3. That such a single fee schedule should provide a consultation fee for referred cases."

The Committee spent some time in discussing Public Relations for the General Practitioner and in this regard the pamphlet published some time ago by The Medical Society of Nova Scotia entitled "Information for Patients" was well regarded and is to be studied with a view to some similar pamphlet to be used nationally.

The Committee also felt that the maintenance of continuity of this Special Committee would do much to strengthen Provincial Sections.

Attraction of New Doctors to Family Practice

The following resolution was passed:

"WHEREAS this committee is concerned about the diminishing number of physicians going into Family Practice;

AND WHEREAS early exposure to Family Practitioners is essential for medical students and interns in order to show the career attractions of Family Practice;

BE IT RESOLVED that this Special Committee of General Practice supports the principle enunciated by the College of General Practice of Canada of the establishment of Departments of Family Practice in all Canadian hospitals, including teaching hospitals."

The image of the General Practitioner was discussed. It was agreed that an attempt should be made to get away from the old term "General Practitioner" and that we should increasingly assume the habit of calling him a "Family Physician". The Committee has asked that action be taken to rename each Provincial Section "The Section of Family Physicians", and also for individual doctors to call themselves "Family Physicians" on their name plates and in their telephone directory listings. Telephone companies across Canada are to be approached to change the yellow pages listings in this regard.

The Committee also considered ways and means of overcoming the not inconsiderable difficulties experienced by General Practitioners, particularly those in solo practice, in attending Provincial and particularly National meetings. These included problems of time, problems of loss of income and

(continued on page 132)

Aims and Functions of the Section of General Practice*

J. P. DONACHIE, M.B., CH. B.

Amherst, N. S.

When the Section of General Practice was inaugurated in March, 1966, a committee was appointed to report on the aims and functions of the section. This report reviews the relationship of Sections of General Practice to their provincial Medical Society, to the C.M.A., and to the College of General Practice, and outlines the possible aims and functions of a section.

The College of General Practice

Prior to 1954, the interests of the general practitioner of Canada were reputedly catered for at the national level by the Section of General Practice of the Canadian Medical Association. This section existed little more than in name, and achieved nothing in promoting the aims of the general practitioner. Many doctors felt that if general practice was to continue to exist as a separate entity, then the individual practitioner must have some means of keeping up with the advances in medicine through education, and through free inter-communication of ideas on the national level. It was for this reason, and at this time, that the College of General Practice came into being. In addition to education of the general practitioner, it is concerned with many other factors that influence the future of general practice, such as the distribution of doctors, recruitment into general practice, the ratio of general practitioners to specialists, and the patterns of medical practice.

The Section of General Practice

Obviously, there are many other factors affecting the general practitioner which are not encompassed by the activities of the College of General Practice. After the founding of this organization in 1954, there was a revival of interest in the Section of General Practice of the C.M.A., and in recent years provincial sections have been increasingly active, especially in Ontario, British Columbia and Alberta. In our own Province, there has been a Section of General Practice of The Nova Scotia Medical Society for several years, although to date it has achieved less recognition than its counterparts in other Provinces. In spite of the fact that general practitioners form the largest single group of doctors in this Province, they have not made their voices heard to any extent. This has no doubt been due to apathy and disinterest on our part:

however, with a medical care programme looming in the not too distant future, it is past time for the general practitioners of this province to take stock of their position. The Section of General Practice in any Province has representation on its Provincial Medical Association, and through it to the Canadian Medical Association. The Handbook of organisation of the Ontario Medical Association gives the following as the function of a section:

1. To represent the views of the special interest group that it comprises, in matters of business and of practice.
2. Each section has a responsibility of helping to organize the scientific programme of the annual convention.
3. Each section is required to have an annual meeting for the purpose of conducting business and electing officers; may arrange a scientific programme of special interest to its members in conjunction with this or at any other time.

Important as the last two items may be, it is probably the first item which concerns most of us directly at this time of rapidly changing medical politics and economics. In most provinces, the Section of General Practice has concerned itself primarily with these aspects of medicine as they affect the general practitioners in their area, but it must be remembered that even in a single province the problems of the general practitioner are far from uniform. What may be a serious problem to the general practitioner in the Dartmouth-Halifax area is perhaps less of a problem to his colleague in Yarmouth or Truro. Nevertheless, many problems will be common to all general practitioners, and it is only by voicing these problems to the appropriate body, primarily concerned with economics and business matters, that a satisfactory outcome can be obtained. In Nova Scotia, the appropriate body is the Section of General Practice of The Medical Society of Nova Scotia. Although not an autonomous body, the Section does have its own rules and regulations and, of course, its own executive. Unfortunately, there has been a widespread apathy among the general practitioners in this Province concerning the section and until we take a greater interest in the running of our own section there is little that will be achieved.

*Presented at the Summer Meeting of The Medical Society of Nova Scotia, July 1966.

Only recently the secretaries of each branch of the Medical Society were asked to appoint a corresponding member in their area, to correlate the views of general practitioners there, and to communicate them to the Section of General Practice. The response was disappointing in that only three replies were received. If the Section is to be truly representative of the general practitioners of the Province, and be able to speak authoritatively on such matters as hospital privileges, fee schedules and related problems, it must have adequate backing from the group it represents.

In summary, it may be said that whilst the College of General Practice is primarily concerned with the educational needs of the general practitioner the Section of General Practice of the Provincial Medical Society is responsible for all other items related to medical politics and medical economics as they concern the future of general practitioners. □

G. P.'s Organize Nationally

(continued from page 130)

problems of coverage in a branch of the profession, which, by its very nature, requires twenty-four-hour, seven-day-week availability.

The delegates of the Nova Scotia Section of General Practice wish to thank their colleagues for the opportunity of attending the meetings of this organization in its formative stages, and for the honour of representing the Section. We look forward to further revitalization of our own Section of General Practice, as well as of those in the other provinces, with the continuing stimulation provided by these new measures. We feel that an important step forward has been taken on behalf of the Family Physicians of Nova Scotia and, indeed, of the Dominion. □

FORTY YEARS AGO

From The Nova Scotia Medical *Bulletin*, June 1927

There are various methods of giving transfusions. (1) The direct method. This requires good team work and a fairly elaborate equipment, but is, nevertheless, most efficient and free from reactions. (2) The citrate method is a method which has many advocates. The chief advantages of the citrate method are that few assistants are needed and that it can be easily carried on outside of hospital. (3) Defibrinated blood. This is particularly indicated in cases of septicaemia where we are most anxious not to cross-infect the donor. After the necessary preliminary typing and cross-agglutination have been done, the blood is taken from the donor by means of syringes, placed in a saline flask, in the bottom of which are 20 to 24 glass beads. A nurse takes charge of the saline flask and, as the blood is put into the flask, it is constantly agitated by shaking. If a transfusion of 500 cubic centimeters of blood is being given, one should take from the donor 550 cubic centimeters, thereby allowing for 50 cubic centimeters of fibrin. It is also important to keep shaking the flask with the blood in it for seven or eight minutes

after placing in it the last 50 cubic centimeters of blood. A common mistake is to stop shaking when once the required amount has been taken from the donor, forgetting that the last syringeful has not been defibrinated. The blood is allowed to stand for another five minutes, being kept at body temperature by placing the flask in some warm water. The patient is prepared and the blood is filtered through eight layers of sterile gauze. A fresh needle is placed in the recipient's vein and the syringes are filled with the defibrinated, filtered blood and injected into the recipient. If syringes are not available, the blood may be allowed to run from the donor into the flask, and when sufficient quantity has been drawn off the blood may be filtered and simply placed in an intravenous jar and given by the ordinary intravenous method. This, of course, would eliminate the use of syringes altogether. I believe that it is better to give two small transfusions, say of 400 or 450 cubic centimeters each, rather than a large transfusion of 700 or 800 cubic centimeters. Transfusions may be repeated at intervals of three or four days. □

ADVERTISER'S INDEX

Ames Company of Canada Limited	I.B.C.
Astra Pharmaceuticals (Canada) Limited	126
Bell, Alfred J. & Grant Limited	117
Frosst, Charles E. & Company	134
New York Life	136
Parke, Davis and Company Limited	I, II, III, IV.
Purdue Frederick Company (Canada) Limited	120
Robins, A. H. 30., of Canada Limited	V
Sandoz Pharmaceuticals	121
Searle, G. D. & Company (Canada) Limited	O.B.C.
Smith Kline & French Inter-American Corporation	VI

Summer Meeting, The Pines, Digby, N. S.

July 1st, 2nd, 3rd, & 4th, 1967

You are invited to complete and return the Housing application form on this page.

Dr. G. McK. Saunders and his Committee Chairmen are developing the program which starts on Friday evening June 30. The detailed program is outlined on page 127.

You can be assured of an interesting program which will include time for relaxation to enjoy the surroundings and pleasures associated with The Pines at Digby.

HOUSING APPLICATION FORM The Medical Society of Nova Scotia The Pines Hotel, Digby, N. S. July 1, 2, 3, 4, 1967

Executive Secretary
The Medical Society of Nova Scotia
Dalhousie Research Centre
Halifax, N. S.

Please have reserved for me the following: -

Please check

IN HOTEL

- Double room with bath - twin beds - including meals \$17.00 per person per day. (accommodates 2 persons)
- *Single occupancy \$20.00 per person per day. If attending alone please indicate with whom you wish to share accommodation.

IN COTTAGE

- Cottage \$5.00 per day with sitting-room and two twin bedded bedrooms - including meals \$17.00 per person per day. (accommodates 4 persons)
- Cottage \$5.00 per day with sitting-room and three twin bedded bedrooms - including meals \$17.00 per person per day. (accommodates 6 persons)
- CHILDREN under 14: Rate \$9.50 per day per child. Please give ages of children accompanying you.

	Day	Date	Time
Date for arrival	AM..... PM.....
Date for departure

Name of persons who will occupy above accommodations:

NAME	(please print)	ADDRESS
.....
.....
.....

*In view of the attendance expected, single occupancy of rooms cannot be guaranteed. If coming alone, and you are willing to share a room in the hotel, please check here.....

N.B.—Space will definitely be available at "The Pines" for applications received up to June 10, 1967. Accommodations at the Pines or a motel can be provided for applications received after June 10.

Appreciation

Ray MacLean

Ray was born in Stellarton, and received his early education in the famous Pictou Academy from which so many staunch Presbyterians, quiet, conscientious, hard-working and talented, found their way to the medical school at Dalhousie.

He was a good student. He entered enthusiastically into the extracurricular activities of the university; played with ability and vigour inter-faculty football; was an excellent horseman and enjoyed curling. He was a Charter Member of Phi Chi Fraternity and retained an active interest in its affairs as an alumnus. The social aspect of his college life was completely filled by Sybil, the girl who later became his wife.

Much to the amazement of many of his colleagues Ray chose, as his major internship, the Public Health Clinic. In the '30's - the depression years - this was the centre of the unemployed and unemployable, the "drifters" and those just "down on their luck." Interminable hours spent injecting Bismuth and Salvarsan, doing bladder irrigations and urethral dilatations for Neisserian victims, breaking the news to those afflicted with Koch's bacillus, of the long and tortuous road to recovery, usually in the Kentville San., away from family and friends; treating the impetigos, the scabies, the flea-ridden, seeking to find ways and means for those who had none, of aiding the nutritional anaemias and the generally undernourished; it was here that Ray MacLean began his practice of general medicine. It was here that countless hundreds learned to love him; his quiet competent approach to their difficulties, physical and emotional, his courteous but firm insistence that they persevere with their treatments, and his skill and dexterity in providing them through many long, wearisome and discouraging months; his kindness and approachability - ere long it was not "I'm going to the clinic" but "I'm going to see Dr. Ray." Here he endeared himself to patients, staff and colleagues "for manners are not idle but the friend of loyal nature and of noble mind."

Those whom he had treated in the clinic became the nucleus of his practice when in 1930 he graduated and opened his office in Halifax.

His early years in practice were largely charitable; unostentatious, unboasting, content in the knowledge that he was fulfilling his Hippocratic oath and that time would bring its own reward; as indeed it did. With better economic conditions his "clinic" patients, their children and their children's children, as well as an host of others, sought him out to be their family doctor, their

ever-present help in time of trouble, their friend. And he was all these. His responsibilities might have daunted a lesser man but he had a gift of organization and his office hours were arranged to get the most out of the time available; a special day for obstetric exams, for immunizations, for health exams, for "odds and sods", which enabled him to render the most efficient service to the greater number of people.

Ray was an original member of the N.S. Chapter of the College of General Practice of Canada, for he early realized that to maintain the standard of medical practice he had set for himself meant a life-time of continuing study.

Ray's interest in community affairs was concentrated mostly in the activities of the Lions Club of which he was a charter member and Past President.

Invariably once a year walking into the Doctors' Lounge of the Infirmary, one was greeted by the sight of a stack of packages of "nuts"; usually a doctor's name was inscribed on each package and it took a pretty hardened character to say 'no' to the smiling, genial Ray as he pressed the package into one's hands and collected the contribution for the Lions Club charities from "the other nuts".

His own charitable givings were large, varied and cheerfully offered, nor was he ever known to invoke the 10% income tax exemption.

He was a strong supporter of St. David's Church and the Y.M.C.A., and among his other interests were the Waegwoltic Club, South End Tennis Club, Ashburn Golf and Mayflower Curling Clubs.

He was a loyal friend. A wealth of sound, if whimsical, advice could be extracted though seldom volunteered. When he spoke at meetings, it was to present the problems succinctly and their solutions clearly; not for Ray the stock clichés and verbal meanderings of the less organized mind.

At the time when the thought of a little more leisure, a little more family life, a little more time for friends, for travel, for relaxation, was beginning to enter into his plans - he died. Each of us will miss him in his own way - his family, to whom we offer our heartfelt sympathy; his friends, his patients, his profession, whose ideals and concepts he has ennobled throughout his career.

"Death slue not him, but he made
death his ladder to the skies." □

F.M.F.

The Nuffield Travelling Fellowship Available in 1968 to a Canadian General Practitioner

As part of a large scheme of Educational Grants and Scholarships, the Nuffield Foundation of England makes available a generous Travelling Fellowship every three years in Canada. It was won by Dr. J. R. Loudoun of Guelph, Ontario in 1962. He studied Education for General Practice in Britain and Australia. Dr. W. A. Falk of Victoria, B. C. studied Research in General Practice in Britain, New Zealand, Australia, and International and Geographic medicine in 1965. The award becomes available to a Canadian again in 1968, but the closing date for application is September 15th, 1967. **Object:** To assist a Family Physician to broaden his personal experience and perspective and to expand his knowledge of an area of special interest to him.

Method: A Fellow is expected to take a 6-months study tour. His program of study must be approved by the National Awards Committee of the College of General Practice of Canada, who administers this award in cooperation with the Foundation. Preference is given to study in Commonwealth countries but visits to other lands are permitted as long as the Fellow has a knowledge of the local language. Fellows must undertake to return to general practice. Preference will be shown to applicants between ages 35 and 45 but there can

be some flexibility. Since physicians' wives are so often deeply involved in their practice, a Fellow's wife will be encouraged to accompany him for half his absence from home.

Finance:

- (1) Return air fare, tourist class, for both husband and wife is provided.
- (2) Daily living allowance:
 - (a) In Canada and U.S.A.:
£ 9 for Fellow and £ 4 for his wife
 - (b) Outside Canada & U.S.A.:
£ 5 for Fellow and £ 3 for his wife
- (3) Payment of a Locum Tenens (during 6 months absence and two weeks before leaving and two weeks after return) at rate of £1200 for the 7-month period. (£200 of this is car allowance)

This Scholarship is a treasured award and warrants the expected detailed report to the College and to the Foundation on completion.

Interested physicians should apply before September 15th, 1967 to:

The Executive Director
College of General Practice of Canada
1941 Leslie Street
Don Mills (Toronto), Ontario

Canada's Family Physicians Gather in B. C.

The College of General Practice of Canada is holding its eleventh Annual Scientific Assembly at Hotel Vancouver, Vancouver, B.C., July 10-13, 1967. The theme of the scientific program is:

"MANAGEMENT OF EMERGENCIES IN GENERAL PRACTICE"

The summer dates have been chosen in order that family physicians may take a family vacation in addition to attending the clinical sessions.

An outstanding clinical program is being arranged, and the evenings will be filled with pleasant social events. A committee has been set up to look after children's events.

Of great importance is early registration, as Vancouver is always a busy tourist centre in the summer. Interested parties should forward their registration application to:

Dr. D. Bachop, Registration Chairman
750 W. Broadway
Vancouver, B. C.

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