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The NOVA SCOTIA MEDICAL BULLETIN

EDITORIAL

The Biology of the Para-Medical Publications

The practicing physician is exposed to a variety of 'throw-away' publications, so called because, as he does not pay for them, the trade feels repaid its expense if he will peruse them before filing them in the 'circular file' under his desk. These publications are not all alike and to help you distinguish among them a classification, done up in the manner of the biological sciences, is suggested for your use.

A Classification of the Genus Pub-Licationae Para-Medicus Commercialae.

Type I. Pub. Commercialae Purae (Overt type of Hagedorn)

The distinguishing features of this type are: no attempt is made at camouflage; it is not parasitic on Pub. medicalis purae and is not predaceous on the young of higher species. Unless driven mad by hunger, it keeps its place in the natural order and is regarded as a commensal.

Type II. Pub. Commercialae Parasiticus (Wormwood's Trojan Horse Type)

(a) Pub. Comm. Para. Scientificus
(b) Pub. Comm. Para. Titillationae (Pseudo-medicus Newsmagazin of W. B. Bean.)

This group is camouflaged to a considerable degree and attempts to mingle with birds of the species Publicationae Medicus Purae. They can be distinguished easily by their voracious appetites and their feeding habits. They prey on the young of the higher species.

Type III. Pub. Medicus Illegetimi

This is a difficult type to recognize because even their own mothers don't know from which egg they hatched. Students of the subject believe that this type is made up of birds of the type Pub. Commercialae Parasiticus whose camouflage is excellent and who are able to mimic accurately the species Pub. Medicus Purae. The remainder are the bastard offspring of parasitized and degenerate forms of Pub. Medicus. This type is hard to recognize and is a great danger to pure strains of Pub. Medicus and the more numerous species, Medicus Purae Clinicus.

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A new hobby group, journal watchers, is needed who, like bird watchers, can spy out the species through a knowledge of their nesting and feeding habits. Skill and experience is required to penetrate their clever protective coloration especially when they are found foraging far from their natural habitat. A would-be journal watcher is advised to scrutinize these types carefully before deciding which will be allowed to roost on his desk or in his study.

By definition, the para-medical publication is a commercial venture that originates outside organized medicine and the scientific (and other professional) labors of its members. The para-medical journal, whatever its trappings, owes its existence to purposes foreign to the profession and its management yields to the necessities of the market place. The ancestry of a journal is no guide to its present state, if bond or free, for many begin with a loose arrangement between printer and medical sponsor. Since advertising revenue has always paid most of the cost of production of the journal, editorial freedom has often been at risk unless the sponsor owned the printer. When the printer passes into the control of the advertiser, the editor may find himself attempting to serve both God and Mammon. There are a great many variations of this three-cornered alliance between the professional (incl. scientific) journals, the editor-publisher-printer and the advertiser who ultimately pays 80 per cent or more of the cost of the publication. The physician, like the medical student, is paying only a fraction of the cost of his tutelage but he may be paying the rest of the cost in the more precious coin of integrity and (public) respect.

J. O. G.

AN APPRECIATION

April 24, 1961.

TO THE EDITOR:

Hi, Brother Timothy, have you heard this one? When I was in Vegas there was a girlie, Swiss I would opine—but hold, the Bulletin is not the sheet for such a puerile anecdote. You can read it in Uncle Ray's Corner!

I have read Brother Timothy's message in each issue of the Bulletin since he first put quill to papyrus. He has always been interesting, (stimulating), sometimes controversial, but always full of subtle wit.

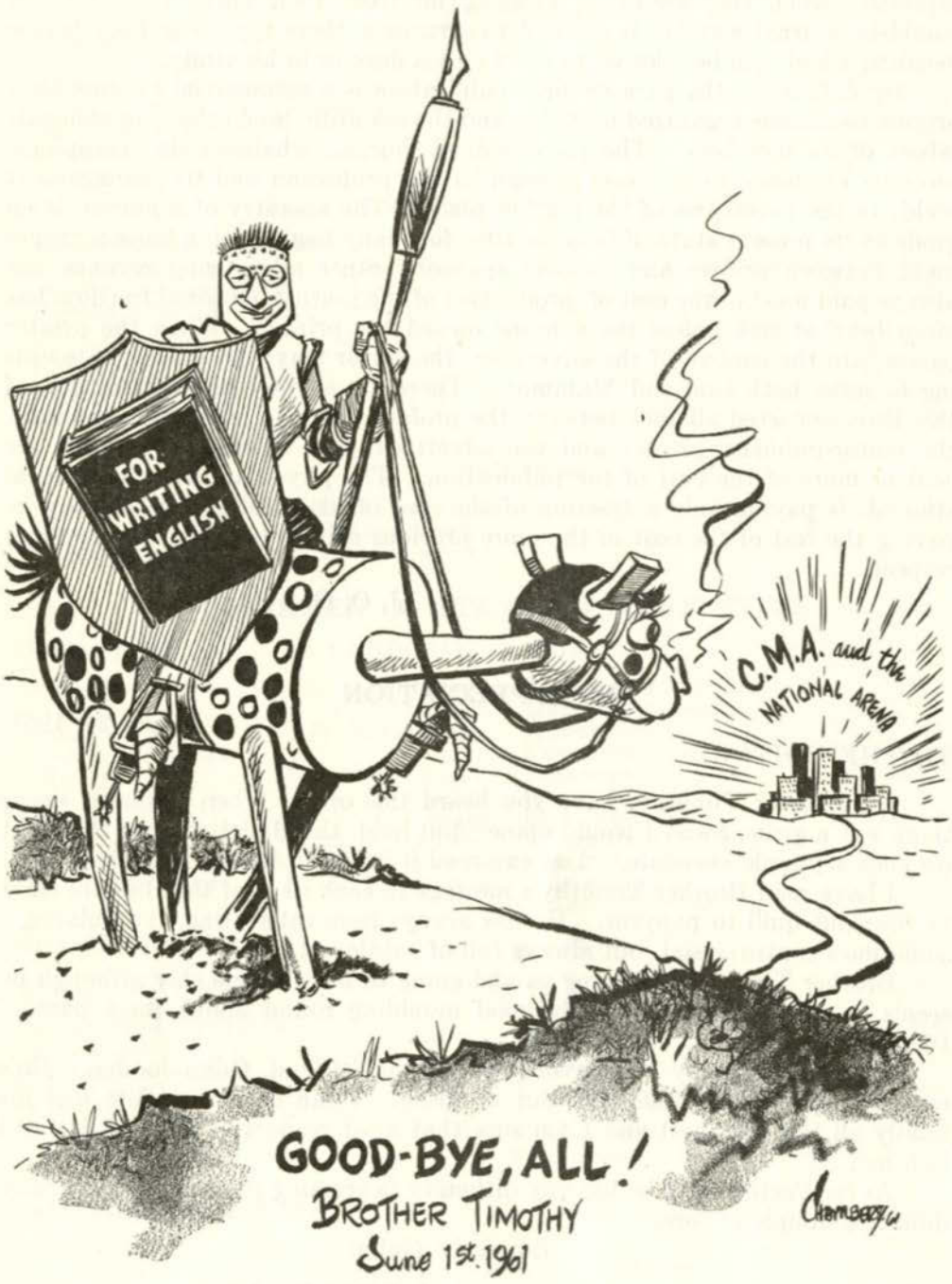
Brother Timothy is leaving us and going to more fertile clay although he seems to have done some fairly good moulding round about these parts—Ingonish etc.!

This would be my "Au revoir," to my good friend, Gohn Jodden. He's real gone man, real gone, way out in space! I can only wish him and his family all the very best and I am sure that most readers of the Bulletin will join me.

As for Parti-Pax. if he has any difficulty in crossing the Styx, I will gladly donate a couple of 'ores.

Sincerely Gohn,

A. J. BRADY, M.D.
Halifax, N. S.


FOR WRITING ENGLISH
C.M.A. and the NATIONAL ARENA
GOOD-BYE, ALL!
BROTHER TIMOTHY
June 1st. 1961

VIRUS INFECTIONS OF CURRENT INTEREST*

A Review

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Halifax, N. S.

With a subject as broad in scope as "Viral Infections of Current Interest" it is difficult to know where to begin or where to end and still give a concise and comprehensive coverage.

One method of approach, and the one I would like to follow today, is:

(1) to review briefly some of the physical and chemical properties of viruses.
(2) to discuss materials and methods currently in use in virus laboratories, and
(3) to report a few of the recent discoveries made by virologists which are related to the clinical, diagnostic and epidemiological fields.

Physical and Chemical Properties

No satisfactory classification of viruses has yet been made. Several have been proposed but not accepted by a sufficient majority of workers—except for the rather obvious breakdown into animal, bacterial, and plant viruses. This discussion will be concerned with the first group only, i.e., those parasitizing animals.

Viruses have been described as submicroscopic, or nearly submicroscopic, filtrable entities capable of multiplication only in the presence of suitable living host cells. Since the limit of resolution of a good miscroscope is in the range of 0.25 μ, this means that viruses are approximately 250 mμ or less in size. Most of them are much less, poliovirus for example is 10-20 mμ. Particle size is usually estimated by one of the following methods, and sizes stated vary slightly depending on which method has been used:—

(1) Passage of the material through a series of collodion membrane filters of known porosity.
(2) Concentration in an analytical ultracentrifuge with determination of sedimentation characteristics in a known centrifugal field, and
(3) electron microscopy studies.

When speaking of a virus as a filtrable entity, the filters referred to are fine bacteriologic filters, and not the collodion membrane ones used for size determinations. In 1892, Iwanowski working with tobacco mosaic disease found that he could pass material through a filter so fine that the smallest living organism then known would be retained and still the filtrate was infectious.

It is hard to conceive of anything so small being an entity, but, in the words of Burnet (1955) viruses are "the simplest organisms yet they exemplify clearly every major characteristic of living matter, replication with all that it entails, inheritable variation, selective survival within the appropriate ecological system, and no doubt an evolutionary history".

A submicroscopic filtrable entity capable of multiplication—The mode of multiplication is not fully understood at this time. It is generally considered that after penetration of the cell the virus loses its protein membrane and its nucleic acid then acts as a regulator of host cell metabolism, diverting cell activity toward the production of new virus. Only a few viruses have been reported to reproduce by binary fission; these are the larger basophilic psittacosis-lymphogranuloma group (Rhodes and van Rooyen, 1958).

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*Text of a paper read to the Dalhousie University Medical Postgraduate Refresher Course, February 28th, 1961, Victoria General Hospital, Halifax, N. S.

In the presence of suitable living host cells—This sounds like a straightforward statement but in the laboratory it is the word "suitable" that is the joker. Some virus types are so selective that their host range is very narrow, others will propagate at a certain temperature but not at one a few degrees higher or lower. Some of the Coxsackie type A viruses, for example, will not multiply or even survive in any known tissue culture, nor will they multiply in mice which are more than a few days in age.

Viruses are a heterogeneous lot. In size they vary from the tiny foot-and-mouth disease at 10 mμ to psittacosis at 275 mμ. Their shape may be spherical (e.g. poliomyelitis), brick-like (vaccinia), filamentous (influenza) etc. Some viruses, e.g., herpes simplex, cause intranuclear inclusions in the cells they attack, some, like rabies, cause intracytoplasmic inclusions, some (e.g. smallpox) cause both, while in about half of the known viral infections of man and lower animals, inclusion bodies have not been observed. The composition and staining reactions of these bodies varies. At one time they were of considerable aid in diagnostic work. In recent years, however, more accurate methods of identifying viruses have been developed. An exception to this, is the presence of Negri bodies, which as in the past, still continues to be the method of diagnosis of rabies.

The chemical structure of viruses is too complex to be discussed in any detail here. Suffice it to say that all viruses contain protein and nucleic acid, while some also contain lipid and other materials. The nucleic acid may be ribonucleic acid (RNA) or desoxyribonucleic acid (DNA) but both types are not found in the same virus. Viruses do not possess independent metabolic enzyme systems, so far as is known.

Viruses survive for long periods in the cold, many may be stored at -20°C. for months without any great loss of titre; others require temperatures of -70°C for storage. They are destroyed by heat, some for example at 60°C. for 30 minutes. Ultra-violet light rapidly kills them; 20% ether will inactivate some, but not all; this is, in fact, one of the tests used in studying newly isolated or unidentified agents. Mutation and recombination are known to occur.

Virology is a relatively new science and yet it goes back further than most people realize. By the late 19th century, bacterial agents had been successfully found for so many diseases that workers were beginning to wonder about those illnesses from which no agent had been recovered. Gradually, the idea of a submicroscopic "organism" was conceived. Iwanowski's work with filtered extracts was only the beginning. In 1897, Loeffler and Frosch transmitted foot-and-mouth disease from infected to healthy animals, using bacteria-free filtrates; and in 1901, the virus of yellow fever in man was reported by Reed and his co-workers.

Materials and Methods

Hosts suitable for the laboratory propagation of these and other agents were sought. By 1914 laboratory animals, chicken embryos, and tissue cultures had all been successfully employed. Each of these host types has greatly contributed to our knowledge but it was with the advent of tissue cultures that the greatest advances have been made. They are cheaper and easier to handle than either eggs or animals and since they permit the study of individual cells rather than an entire organism, strains of low pathogenicity may be more readily isolated. Then too, many of the tissue cells in use are of primate origin and therefore susceptible to a whole range of viruses which have no effect on laboratory animals or eggs.

Tissue Culture Techniques

A tissue culture is, generally speaking, a bacteriologically sterile, confluent growth of tissue cells, usually one cell thick and hence known as a monolayer, growing on glass—it may be a test tube, a petrie plate, a plaque bottle, etc. Cultures so grown may be either primary cell cultures that are prepared from fresh tissue and grown for the first time on glass; or they may be continuous cell lines. In the latter case they are cultures which have been grown on glass, the sheets broken up and replanted in new bottles or test tubes and the process repeated over several generations. There is a cytological difference between primary cultures and continuous line cultures, the cells having changed sufficiently that some viruses which will grow in primary cultures will not grow in continuous line cultures of even the same type of tissue. McLaren et al (1960) grew Coxsackie A9 virus in primary cultures of human amnion, chorion, and fetal kidney tissue and after a continuous line was established from these identical tissues, they found that they were not able to infect these cells with the original virus type.

Of primary cell cultures the commonest are the rhesus or cynomologous monkey kidney cells. They are still popular—in spite of the difficulty that may be encountered with monkeys carrying any one of dozens of different simian viruses—because they are inexpensive, fairly easy to handle, and a great number of viruses thrive very well therein.

Fast growing in popularity is human amnion (readily available from placentas) which is a little more difficult to establish in culture but which, once adapted to glass, settles down well and is easy to maintain. Another primary culture used is human foreskin—these fibroblastic cultures are the most useful ones for isolating chicken pox and cytomegalic inclusion disease viruses. Human embryo organs especially kidney, monkey testis and chick fibroblasts are less commonly used.

Among the continuous cell lines the one that immediately comes to mind is the HeLa cell, originally grown in February 1951 by Gey et al (1952) from an epidermoid carcinoma of the cervix. Both monkey kidney and human amnion are now available in continuous line cultures, as are various other cells from both normal and malignant tissues of human and other animals.

Inoculated cultures are checked microscopically for signs of cytopathogenic effect (CPE). I would like to emphasize that with a few exceptions one can not see the virus itself but only the damage it does to the host. This poses the problem of how one may claim this effect to be viral, and not a toxic reaction or deficiency effect of the inoculum or medium. It has been established that if such material is inoculated to fresh cultures, toxicity will diminish with each passage, and deterioration due to media or age will be overcome, but if the damage is a viral-induced cytopathogenic effect, the effect will again appear in the new cultures, usually more rapidly and involving more of the cell sheet as the titre of the virus increases with passage.

During the last few years over a hundred human viruses have been isolated, to say nothing of the dozens of other animal viruses discovered. As you may well imagine, identifying a tissue culture isolate may be at best time-consuming, and at worst, impossible. From the effect on cells alone, it is usually difficult to even hazard a guess as to which virus is present although some few have a fairly characteristic type of cytopathology. To identify a virus the following knowledge is almost essential.

A. A good clinical history embodying the following points:
   (1) from what *type* of illness was the patient suffering.
   (2) was there any recent history of contact with known illness, either in Canada or in travels to other countries.
   (3) was there a history of contact with sick animals.

B. From the laboratory aspect—
   (1) from what site was the virus isolated—throat, cerebrospinal fluid, brain, stool, etc.
   (2) in what laboratory hosts can the agent be propagated and what type of damage does it do.

With this information in mind it is then possible to narrow the field and to choose the most likely type-specific antisera for typing the virus isolated. Neutralization tests are set up, that is, type-specific antisera are mixed with the virus in appropriate dilutions and the mixtures inoculated to the host cells. An antiserum capable of neutralizing the virus will render the latter incapable of infecting the host while antisera of a different type will have no effect on the potency of the virus and it is then free to infect the host as before. These tests must be carefully controlled and since living material is involved they are often difficult to control. A virus laboratory will seldom make the statement "This virus is such and such a type", but usually "Results of tests would indicate that this virus is such and such".

Tissue cultures will, in some cases, support viral multiplication but show no visible cell damage. Then recourse to other identification tests must be made. Hemadsorption and hemadsorption inhibition tests may be useful if the virus is one possessing hemadsorption characteristics. When red blood cells of certain species are permitted to flow over the cell sheet, the erythrocytes are adsorbed to the surface of the infected tissue; conversely, tissue cells which are not infected do not adsorb the red cells. To type these viruses, mixtures of virus and antisera are inoculated to the cultures and after a suitable incubation period erythrocytes are added. If the correct type-specific antiserum has been used there will be no infected tissue and therefore no adsorption of erythrocytes to the cell sheets.

Fluorescent Staining

Another identification procedure is the fluorescent staining technique. One application of this is in the study of the Eaton agent of primary atypical pneumonia. This particular use of the fluorescent antibody technique is not yet sufficiently standardized or simplified for use in the routine diagnostic field, but fluorescent staining procedures are being used diagnostically in some places and for certain other virus diseases.

Embryonated Eggs

Embryonated eggs are used in studying some viral agents, e.g., influenza, encephalitis, vaccinia, variola, mumps. In certain cases lesions are formed on the chorioallantoic membrane, sometimes there is death of the embryo, while in other instances the fluid from the amniotic sac is harvested and hemaglutination tests carried out. Tissue cultures are used in place of eggs where practicable but for a few viruses, fertile eggs are still the method of choice.

Laboratory Animals

Animals are employed in virus laboratories also, monkeys, ferrets, rabbits, guinea pigs, mice, etc.; probably the most commonly used single species is the

white mouse. This is used in the study of encephalitis (3-6 day old mice at time of inoculation) for the Coxsackie viruses (less than 24 hours old when inoculated), and others. Some of the type A Coxsackie viruses will not propagate in tissue culture so that suckling mice become an important diagnostic tool for these. It is largely on the type of illness and paralysis of the mice that the Coxsackie viruses have been divided into the A and B groups.

Serum Antibody Titre

Much is heard these days of the diagnostic value of demonstrating a rise in antibody titre between the blood serum collected in the acute phase of the illness and that collected 10-14 days later and known as the convalescent phase. A four fold rise in either neutralizing titre or complement fixing titre is considered significant.

Demonstrating an antibody rise is not quite as practical as it sounds, however. In the first place a patient is often past the "acute" stage before the physician is called, and the titre in some virus illnesses rises quickly and then levels off before slowly falling. The greatest difficulty is, however, that unless a virus has been isolated from the patient's specimens, there is no baseline from which to begin investigation; it is impossible to carry out neutralization or even complement fixation tests, unless one has some idea which virus or virus antigen to use. *A request for "antibody studies" or "virus studies" accompanying blood sera is a virtually impossible request unless*—and I repeat—unless a virus has first been isolated from the patient's specimens.

An exception to this is in the case of an epidemic of known viral etiology or in a serum survey. Then the patient's sera can be set up in tests against the predominant strain, but this will indicate only that the patient has or has not a rise to this one particular strain.

Serum neutralization tests are time consuming and are usually carried out only in well documented cases of particular interest to the clinician. A single serum sample (as contrasted to the two phase samples) is, in almost every case, valueless.

Upon these basic concepts and methods of virology a vast structure of new techniques, new applications, and hence new knowledge has been built.

Animal Tumour Viruses

The viral etiology of neoplasms has been one of the many approaches to the study of cancer. For some 50 years it has been recognized that certain tumours in animals may be virus induced but it was considered that these tumours resulted from a proliferation of host cells stimulated by virus. Recently, however, it has been shown that virus action can cause a genetic change to occur in bacterial cells, and this knowledge makes it easier to realize that viruses might also have a mutagenic action on animal cells. The usual type of tumour whose cause appears to be either spontaneous mutation or that induced by X-ray, hormone, or chemical carcinogen does not differ in any fundamental respect from virus induced tumour.

Among the animal neoplastic viruses are the Rous Sarcoma of chickens, Bittner's mammary tumour virus which attacks the inbred strain of mice known as C_3H and produces carcinoma of the breast; the Gross mouse leukemia; and one which has recently become so well known, the Polyoma virus of mice. McCulloch (1960) in a recent issue of the Canadian Medical Association Journal gives an excellent review of the work carried out by Stewart,

Eddy and others, with this virus. They found that after passage in tissue culture the virus has 3 important properties:

(1) It regularly induces multiple primary tumours of many different cell types in mice, whereas before tissue culture passage these were found only occasionally.
(2) It induces tumours, both sarcomas and carcinomas, in many strains of inbred mice as well as the non-inbred Swiss mice; previous to cultivation only a limited number of strains were susceptible.
(3) and perhaps the most significant, this virus has crossed the species barrier and is now capable of inducing tumours in hamsters and rats.

Evidence suggests that "tumour infection" if such a term may be used, may well be airborne for, if the virus is present in a mouse colony, most of the strains in that colony will develop antibody; similarly, if uninfected mice are transferred to a room where infected mice are kept, they will develop antibodies, without developing tumors. Even though infection with the polyoma virus is widespread and endemic, yet the most characteristic type of polyoma tumour rarely occurs spontaneously. This is partially due to host resistance since infection will produce tumours only if it occurs during a brief post natal period and during this time the immunized mother protects the newborn animal.

No human cancer has actually been proved to be viral induced up to this time but there have been several reports which strongly suggest that tumour virus is present in human neoplasms. Among these reports are

(1) The isolation of nucleic acid from certain tumours which has a viral-like effect on primary tissue cultures of human amnion cells —(de Carvalho 1958).
(2) The electron microscopic finding of virus-like particles in lymph nodes of acute leukemia patients (Dmochowski and Grey, 1958).
(3) The mammary tumour development in female Swiss mice which were injected at birth with human tumour extracts (Grace et al 1960).

It will be difficult to establish conclusive direct proof that human cancer is viral induced. Tumours may contain harmless commensal viruses and the lack of suitable laboratory hosts renders the task of distinguishing between an inocuous passenger virus and a tumour inducing virus difficult. One can hardly use human volunteers for this type of work.

Common Cold Research

Another field of study in which human volunteers have been used however, is that of the common cold. In Salisbury, England, the Common Cold Research Unit of the Medical Research Council has employed over 6000 volunteers during the last 13 years (Leader, 1960). Although medical literature contains at least 6 reports claiming to have cultivated common cold viruses, 5 of these could not be confirmed in other laboratories (Annotations, 1960). The 6th claim appears to be not only a well-founded one but the work has been confirmed in another laboratory.

Tyrrell and his fellow workers (1960), in Salisbury, were working with nasal washings that they knew contained a transmissable agent. They knew this agent was ether resistant, and that it could be inactivated by human gamma globulin or by acid treatment. Then Hitchcock and Tyrrell (1960) found that if this common-cold material was inoculated to cultures containing certain other viruses it was capable of causing viral interference. If, on the other hand,

the common-cold material was first heated at 56°C. or held at an acid pH, no interference developed. The final break-through came, almost by accident (Tyrrell and Parsons, 1960). The laboratory was having difficulty with a toxic batch of culture medium 199 and in testing several new batches for toxicity they observed a definite CPE with one particular lot. On checking they found this had a lower bicarbonate concentration than those they had been using. Further work with their strains elicited the information that for reproducible results the conditions necessary for visible cytopathogenicity were a lower-than-usual bicarbonate concentration in the medium, incubation temperature of 33°C. rather than 36°C. and continually-rolled cultures rather than stationary ones. They reported at least two distinct strains, referred to as the "Salisbury strains", one of which could be propagated in both human embryo and rhesus monkey kidney cultures, while the other would multiply only in human embryo kidney. Hobson and Schild (1960), confirmed these results by isolating 8 virus agents from 25 cases of natural coryza, again finding two distinct strains.

And still the request is made for human volunteers in Salisbury! A press notice appeals to "anyone in normal health and between 18 and 45 years of age who is willing to spend 10 days in comfortable isolation, with a 'considerably less than 50-50 chance of catching a cold' to communicate with the Medical Superintendent, Harvard Hospital, Salisbury. This free holiday is particularly commended to students working for examinations." (Leader, 1960).

The relationship between respiratory infections and viral etiology is still confusing. There are so many viruses capable of causing respiratory tract illnesses and yet only a few have been associated with clinically distinct syndromes. There are 18 or more types of adenoviruses, the influenzas, the 4 parainfluenzas, the reoviruses, etc. Even the classification of some of these is disputed by various workers. A recent review by Chanock, et al (1960), on the Eaton virus, stated that 80-95% of patients with cold agglutinin-positive atypical pneumonia developed fluorescent stainable antibody for this agent.

Neurotropic Infections

In the neurotropic disease field, several reports have appeared describing cases of paralysis caused by viruses other than poliovirus. Steigman (1958) has reviewed several such cases including (1) acute clinical paralytic poliomyelitis in a human with resulting residual atrophy of the right deltoid and the abdominal muscles, with significant rise in antibody titre to Coxsackie B5 virus and no alteration of neutralizing titre to the 3 types of polio virus; (2) a fatal case of bulbospinal paralytic poliomyelitis from the cervical and lumbar cord of which Echo 2 was isolated; (3) a case in which residual deformity of the right foot and mild atrophy of the right gluteus group was noted—Coxsackie A7 was isolated from the stool, and development of neutralizing antibody was noted. In 1960, Steigman and Lipton reported a fatal case of bulbospinal paralytic poliomyelitis due to Echo 11 virus. And Lennette (1960) has recently described cases clinically considered to be mild paralytic poliomyelitis in which there was clearcut serologic evidence of mumps virus infection.

Gold et al (1961) investigating sudden, unexpected deaths in infants have suggested viral infection as a possible cause in some cases. From 48 such infants studied they were successful in isolating virus from 12, in 7 of which the isolation was made from central nervous system tissue. Coxsackie virus type

A4 was the agent in 6 of these 7 cases, poliovirus type 3 in 1 case (but it is interesting to note that Coxsackie virus type A4 was also present in the stool of this child). They found no histologic abnormalities in brains or spinal cords of any of the children from whom virus was isolated.

Aspects of Prevention

Infectious hepatitis is still keeping its viral identity well hidden. Several groups are working full time on this project but the advances are slow indeed. From the results of large epidemics in institutions where contacts have been treated with gamma globulin, it has been shown that gamma globulin is highly effective in attenuating or preventing the disease in contacts. Passive immunization in a dose of 0.06 ml. per pound of body weight of gamma globulin (Krugman, 1960) protects the patient from a severe illness, although subclinical illness may occur, thus conferring long-term protection.

Isolation and identification of disease-producing viruses, important as they are, is nevertheless not the whole story. Hemmes et al (1960) have carried out an important experiment on the seasonal factor involved in influenza and poliomyelitis virus survival. They found that for influenza the virus death rate is high at 50-90% relative humidity and low at 15-40% relative humidity while for poliomyelitis the reverse is true. They considered that indoor relative humidity may contribute to seasonal fluctuations of the morbidity of these two viral diseases. Influenza in temperate climates is usually a winter disease occurring when the relative humidity indoors is low as a result of heating. Increase in poliomyelitis occurs in the summer months when indoor relative humidity is high and thus optimal for survival of poliovirus in air.

Margrét Gudnadóttir (1961) has reported the survival of poliovirus in hibernating flies for 3 months without significant drop in titre thus suggesting that overwintering of this virus in hibernating flies is possible.

Attacking the problem of virus control from another angle, some laboratories have been working on vaccines. Living attenuated vaccines are in the forefront today.

The oral polio vaccine has received much publicity. Antigenicity trials of the Connaught vaccine will shortly begin in three communities in Canada, one of them in Nova Scotia, in the Yarmouth Area.

Work with live vaccines was in progress even before the development of the Salk vaccine. Whereas the latter contains noninfectious virus particles that stimulate the production of blood antibody but not resistance of the gastro-intestinal tract, the live attenuated viruses given orally, infect the gastrointestinal tract, and stimulate antibody. This type of infection resembles the subclinical infection with wild polioviruses that occurs naturally and which confers immunity on a high percentage of the population.

The Canadian Advisory Committee, however, believe that both live and killed polio vaccines have their place in immunization programs in North America and that each can complement the other (Rhodes, 1961).

Measles

Another vaccine of which undoubtedly more will be heard in the near future is the measles attenuated virus vaccine. In small trials, this vaccine would appear to be effective; the clinical illness produced is mild by comparison with the naturally acquired disease. In some cases fever is present and occasionally toxicity or rash, but most children continue to play normally and do not

appear particularly ill at the height of the reaction. About 1000 children so far have been immunized by this method without ill effect.

The unknown element here is the possibility of the occurrence of measles encephalitis. The reported incidence in the natural infection is from 1 in 400 to 1 in 1000 cases. Tyler (1957). So far there have not been a sufficient number of children vaccinated to predict whether the vaccine can also induce encephalitis.

Both living and killed mumps vaccines are now also being produced, and human clinical trials are underway. It is too early to have any information on the effectiveness of either the antigenicity or the duration of immunity in the field of immunization against measles or mumps.

It is apparent, however, that recent developments in virology indicate that a host of new vaccines will soon be available and the problems of dosage schedules etc. in this enlarging field of preventive medicine, are going to be complex, i.e., where we now immunize a child against diphtheria, whooping cough, tetanus, polio and smallpox, we may soon be adding to this list, measles and possibly mumps. In the more distant future, it is possible that protection against human cancer, may also lie in the field of preventive medicine.

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MISSED ABORTION

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Halifax, N. S.

Death of the foetus at any time during pregnancy up to the third month with retention of the products of conception within the uterus, is the definition given to missed abortion.

The etiology in most cases is not known. For no known reason the embryo dies quietly, usually before the tenth week, without any threatening of an abortion in the shape of haemorrhage and uterine contractions. What happens is that the symptoms of pregnancy such as the swelling of the breasts and morning sickness disappear, the uterus remains the same size or gets smaller, and menstruation continues to be suppressed, although occasionally there is a slight brownish discharge.

The diagnosis is not easy. There is usually no difficulty in recognizing the existence of pregnancy, but it may be difficult to decide whether the ovum is alive or dead. Time will clear up the doubt—if alive, the uterus will increase in size—if dead, the uterus remains the same or even diminishes in size. The Aschheim-Zondek remains positive for two to four weeks but rarely longer, unless living chorionic villi remain. This last possibility, of course, still leaves us in doubt with the positive cases and no way other than time to finally make our diagnosis.

The great majority of these cases will expel the products of conception within a few weeks; a small minority (less than five per cent) will not. The mass expelled in "early" missed abortion, variously termed a fleshy carneous, tuberous, or haemorrhagic mole, presents a characteristic appearance with numerous haemorrhages in the decidua and chorion raising the amnion into irregular projections. There may be no embryo present. Usually the mole is passed within a few weeks—but cases have been reported where it remained until past the expected date of delivery.

TREATMENT: The question here is whether nature should be permitted to effect the expulsion in her own time or whether the dead ovum should be removed. In order to answer this question, the following observations should be reviewed:

1. When the embryo dies, the cervix returns to its non-pregnant state. This means that it will not dilate easily as will the pregnant cervix, so that in trying to deliver a foetus or mole through such a rigid cervix there is great danger that the cervix may tear, resulting in either external or internal bleeding. The following cases will illustrate such a hazard .

CASE 1.—Mrs. S.—Twenty-eight year old multipara, last menstrual period 22 January, 1958—visited her doctor after missing her second period. At that time all findings were normal. Two weeks following this visit she noticed that she was no longer nauseated and her breasts had returned to normal. On her second visit to her doctor, at which time she would be approximately ten weeks pregnant, she explained her suspicions. Her doctor reassured her that all was well and told her to return in one month. At this visit a repeat examination was done, and she was told that she had a missed abortion and was advised to go to hospital to have the uterus emptied. At

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the operation, the uterus was found to be the size of a ten week pregnancy, but the cervix was hard and the os closed. The cervix was dilated to Hegar XII with difficulty, and a packing was inserted in the canal. Following the dilatation it was noted that her pulse was rapid but otherwise she appeared well. Within three hours she passed a small foetus and placenta with no bleeding. Shortly after this her blood pressure dropped and she became shocky—but no reason could be found. She died two hours after the passage of the uterine products. Autopsy showed a very marked extra-peritoneal haemorrhage, arising, it was thought, from the cervical branch of the uterine artery which was torn during dilatation of the non-pregnant cervix.

Case 2—Mrs. T.—Twenty-two years old with proven retention of a three month foetus and placenta for eight weeks. She was very upset and for this reason was admitted to hospital to have the uterus emptied. This was accomplished with little difficulty. However, on return to the recovery room, it was noted that she was pale, pulse was rapid, blood pressure was depressed, and she was quite shocky, with some external bleeding. She was returned to the operating room and the uterus was packed. In spite of this, her course went steadily downhill and she expired three hours later. Autopsy showed extraperitoneal haemorrhage due to tearing of the uterine artery.

These two cases suggest that instrumentation is *contra*-indicated in the handling of missed abortions.

2. It is now recognized that prolonged retention of the dead foetus in utero may result in maternal coagulation defects, characterized chiefly by hypofibrinogenemia. This event may result in severe, uncontrollable postpartum haemorrhage—always dangerous, and occasionally fatal, to the patient.

This fact has been known for some time and much work has been done on it, but in no instance has there been any report where the defect has arisen until the *dead* foetus has been retained for more than *five weeks*. Since statistics tell us that approximately 95% of missed abortions will spontaneously come into labour within five weeks, this only leaves a small group in which the defect may arise; of these a rough estimate would be that approximately 10% of those foetuses retained over six weeks result in the development of the defect.

This would seem to suggest that until the embryo is dead for five to six weeks we have no worry, and then only in a small number of cases.

3. Fibrinogen levels in pregnancy range about 400-500 mgms. percent. Dangerous levels are reached below 150 mgms. percent. It has been believed that these levels are reached gradually, and so weekly fibrinogen levels are sufficient to give us the trend downward when something may be done. Recent work suggests that in a rare case the fibrinogen level may drop within twenty-four hours to a dangerous level. This would be unusual.

This would suggest that after retaining the products for five to six weeks, weekly fibrinogen levels should be done.

4. Fibrinogen used in treating afibrinogenemia is not without its danger. Since it is derived from pooled plasma, there is always a chance that it may harbour a virus, resulting in homologous serum jaundice. This suggests that, *if possible*, we should avoid the use of Fibrinogen.

Bearing the above in mind, the following treatment is suggested:

(1) Ascertain as accurately as possible the time of intra-uterine death.

(2) Wait six weeks following death of embryo.

(3) Check fibrinogen levels. After six weeks blood should be sent for fibrinogen levels weekly. If the level goes below 200 mgms percent, the patient should be immediately admitted to hospital, grouped and cross-matched, and a supply of fibrinogen secured (at least 8 gms). The time has now arrived for active interference.

(4) Give Stilboestrol mgm. V, q 3 hours X 3 days,[1] with a view to making the uterus responsive to stimuli.[1] Jeffcoate, etc., in England reported good results with a large series by the use of Estrin followed by pituitary extract. Although he later retracted some of the claims made for it, the concensus of opinion is that it does help in about 10% of cases. Since the Estrogen can do no harm, it is worth while trying.

(5) Once the uterus has been primed with Estrogen, induce labour with a Syntocin drip, gradually increasing the dosage of the drug at twenty-four hour intervals until labour is established. Begin with ten units in a pint of glucose and water at twenty-five drops per minute. If unsuccessful the first day, repeat with twenty units in a pint of glucose and water. Some writers suggest that you can go as high as one hundred units Syntocin in a pint of glucose and water. Most cases will go into labour after the first or second attempt.

(6) While patient is being induced, it is imperative that blood fibrinogen levels be checked. Should the fibrinogen be below the danger point of 150 mgms. percent or if the patient shows signs of clotting defect (blood in test tube failing to clot), then the fibrinogen level must be restored by blood transfusions or fibrinogen. The defect may not make itself evident until after the uterus is empty when bleeding may be sudden and severe. If preparation is made for this situation, it can be readily met, remembering that sometimes as much as six to eight grams of Fibrinogen is necessary to correct the defect.

In brief, then, "the hands off policy," is still best; avoid instrumentation, no worry for at least six weeks after death of the embryo. The small number of cases that will be retained after six weeks can be safely followed by fibrinogen levels. If the fibrinogen shows signs of decreasing, admit the patient to hospital for induction. A rare case may require hysterotomy.

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(1) British Medical Journal (1935): also Jeffcoate TNA, Lancet (1940), 1, 1045.

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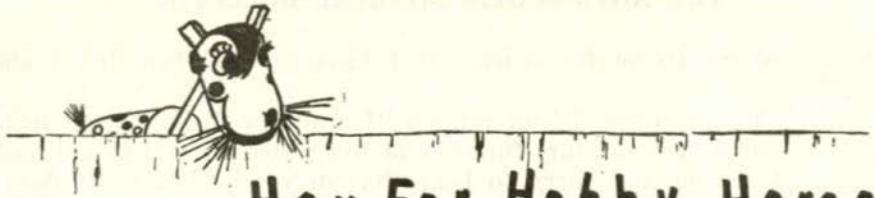
Text Books and Journals are not source enough for the true doctor. The printed word of medical knowledge is not a finished and fixed work like the Holy Writ; it is a text in flux and true doctors write the revision. For them the patient and his disorders are the sources. From the patient comes the picture of disease; and from the patient and his family comes the picture of inherited disease.

L.C.S.



Hay For Hobby Horses

There's One Born Every Minute.

"Federal employment is a public trust . . . . . It is not enough, in my opinion, for Federal employees to be innocent in fact of wrongdoing in outside activities in relation to their Government responsibilities. They must not even *have the appearance* (my italics) of acting in private capacities contrary to the public interest they serve in their Government positions."

Arthur S. Flemming, U. S. Secretary Health, Education and Welfare.
October 14, 1959 in a statement made before the Kefauver Committee.

The analogy between the responsibility of the highly-placed public official and the duty of the individual physician for the protection of public welfare is so close that the Secretary's standard for his employees has some interest for us. In these days of 'payola', 'the cut', 'the fix', 'the commission' it is hard for the public to believe that many physicians do not profit from illness, beyond the fee rendered for the personal medical service provided. This is particularly true in regard to prescription drugs where the physician, and he only, determines the kind, amount and, to that degree, the cost of the drug. In the Canadian Sickness Survey (1953-1955), of direct expenditures for health services, 23.5% of the total was for physicians' services while 20.1% was for drugs and appliances. The matter of the relationship between the medical profession and the ethical drug industry is now being studied by various committees of the C.M.A. but the entanglement of both (the profession and the ethical drug industry) with those who are exploiting them and the public for their enrichment has yet to be examined. The following account describes one physician's experience on the edge of the economic jungle.

In February 1959 I received a letter, typed on good bond, that took 2½ pages to tell me that The Medical Newsmagazine MD, successful in the U.S. for three years, was about to launch a Canadian edition. In recognition of *my standing in Canadian medicine* and in deference to *my many contributions to medical research and education* (their words, my italics). I was invited to become a member of the (Canadian) Editorial Board. I was interested in affairs editorial and hoping for some experience I accepted, despite my natural misgivings aroused by the flattering but quite inappropriate references to my professional standing. Many of my colleagues noted my ascension to 'national editorial rank' but only one asked the important question "With what have you associated yourself?" This physician pointed up his criticisms by examining two articles in the first issue, one on John Buchan, "Many-Splendoured Scot", the other on J. S. Bach "Musician of the Ages". He said "for anyone who knows the life and work of either Buchan or Bach these articles are inept and superficial; anyone who does not, will not stop to read them." This was the beginning of my disenchantment, for the more closely I examined MD of Canada the less reason I saw for describing it as a *medical* (i.e. professional) newsmagazine and the less excuse I could make for associating myself with it.

On March 3, 1960 I wrote to the Editor Dr. Felix Marti-Ibanez "I have examined the first two issues of MD of Canada with care. I have come to the conclusion that the primary function of this publication is to sell medical advertising. As yet, it does not serve a serious scientific or professional purpose *despite its professional patronage.* You have invited me to take part in this commercial venture. Please define my contribution and remunerate me for

the time needed for its performance. If I have no real function I should withdraw."

On March 14, 1960 the Editor replied "I am very disappointed to learn that in your opinion, 'the primary function of this publication is to sell medical advertising'. I am equally sorry to hear that in your opinion, 'it does not serve a serious scientific or professional purpose despite its distinguished patronage'. With all due respect, I would like to point out that your opinion represents such a minority that, as a matter of fact, it is the very first one in all the years of our existence, first in the United States and now in Canada, that we have had along those lines. The purpose of *MD* is *not* to sell medical advertising, but to offer our colleagues a panorama of all the cultural, professional and human aspects of the physician's life. Second, *MD* does serve a purpose, *as confirmed by over* 30,000 *letters of praise* (my italics) received from physicians in the three first years of existence of the *magazine* in the United States. I sincerely hope that as time goes by you may change your opinion, as it will give me a great personal pleasure to know that you agree with all our colleagues who like and admire *MD* and who appreciate the sincerity of our endeavour."

It was unlikely that the Editor who had a good thing going was going to pay any attention to a dummy editor who asked for professional quality in a drug-financed 'throw-away'. But it stuck in my crop that he, holding a medical degree and acting for a person or persons unknown, had appropriated the precious symbol of our profession and, under this sign, invaded our libraries and our off-duty hours with a concentrated dose of medical advertising flavoured with a coating of pseudo-culture, under the reasonable assumption that his package would otherwise be eliminated in the secretary's waste-paper basket. As a bonus, The Editor can boast of "over 30,000 letters of praise from physicians in the three first years". This must prove something but not that MD has a serious professional purpose for no *medical* editor ever had correspondence of that volume from those he sought to serve.

In the years since this self-styled companion to the physician came into our offices not a word of protest or criticism has been raised to my knowledge. On the contrary, each issue of MD features letters, complimentary to the point of effusiveness, from physicians all over the continent.

However, one physician reacted strongly to this brand of "medical journalism". Dr. Wm. B. Bean, Professor of Medicine at Iowa demolished an extravagant tower of babel in a ruthless review of a book by Dr. Marti-Ibanez: "Centaur: Essays on the History of Medical Ideas" (A. M. A. Arch. Int. Med. Vol. 104, 1959, p839). Section VIII of this amazing book, entitled "Editorial Messages", preserves editorials from MD for history. I quote at length from Dr. Bean's review because he, like the child in the fable of the Emperor's Clothes, calls our attention to what should have been obvious from the beginning. "This book, with a not unattractive meconium-colored paper jacket and the half-man-half-beast figure of a centaur, has in store for the lover of fluff perhaps the most concentrated verbal flotsam and jetsam gathered together within the covers of a book since diligent editorial assistance pruned and trimmed down the monstrous out-pourings of Thomas Wolfe. This is such an extravagantly bad book that one sympathizes with the guilt complex which must have been awakened in the numerous persons praised in the acknowledgements. The fetid and hothouse stylistic jungles are vaguely reminiscent of the purplest pages of Poe, Swinburne, and Rabelais, none of whose many good points have been emulated. This exemplified the risks of uprooting an Iberian and trans-planting him into New York. Here he has extended his career as lecturer, psychiatrist, eugenicist, medical historian, novel-

ist and public health officer. Since his arrival in this country, twenty years ago, he has been medical director of three pharmaceutical concerns. According to the blurb on the cover, he has joined a great many societies of medical history and science. Perhaps shipwrecked by the dead weight of unwieldy erudition, he has poured a torrent into the already troubled sea of medical "literature". Not satisfied with the editorships on (International Record of Medicine, the Journal of Clinical and Experimental Psychopathology, Antibiotics and Chemotherapy, and Antibiotic Medicine and Clinical Therapy, he has launched the give-away and throw-away Time-modeled medical news magazine, MD with its not unattractive fare of medical news, history, psychoanalysis, sex and records of drug-house profits.

The paper jacket of Centaur has a description of Marti-Ibanez' achievements, written in his ineffable style, presumably autobiographical, emphasizing the fact that Esquire, Art & Architecture, Gentry, Town & Country, and fantasy-story magazines have had regular contributions for him. The cover goes on to state the Editor is now engaged in writing a tetralogy of the history of medicine, though from the first two books in the series, "Centaur and Men," and "Molds and History" one wonders if tetralogy should have not been teratology. (Surely this is one of the most elegant medical puns extant. Ed.) I found the book so boring that I was unable to finish it, though I managed to sample the editorial passages toward the end of the book reprinted from MD. It is hard enough to believe these were published in the first place, but it takes a bold and self-dedicated person to serve up such a witches' brew of editorial notes, directly or indirectly praising the sagacity and financial success of the author. The upshot of the whole book may be summarized by saying that it epitomizes a decline in taste, the faults of bombast, and flatulent writing. The art of self-criticism has long since passed out of power of the author. No editing was deemed necessary. The dictation by fits and starts must have been done under terrific pressure, on the run, and promptly printed".

That is the first element of my thesis. MD and magazines of a similar ilk, owe their existence to needs and motives foreign if not antagonistic, to the scientific and professional purposes of the physician.

Until June 1960 I had nothing against MD except the natural distaste one has for artificial, though glossy, rubbish. On the 4th of that month, The Saturday Review published an article written by their science editor, John Lear, entitled "Public Health at 7½ Per Cent" which gave the background to the findings of the Kefauver Subcommittee on Anti-trust and Monopoly. Henry Welch, the (then) director of the Antibiotics Division of the U.S. Food and Drug Administration had been taking a large income from journals dependent for their revenue on the drug makers that he was sworn to police. He was paid over $173,000. in seven years as his share of the sale of reprints (of papers published in his journals) to drug companies. His total 'under-the-table' income during this period was in excess of $250,000. All the while, he was assuring his superiors in Government that he was getting "an honorarium (which) at times amounts to as much as $3500. per annum". (I'd like to read his memoirs—and see how he did it. ED.) That he co-operated with his major employers is plain; of the fifty-eight editors of Antibiotics and Chemotherapy, twenty-five were representative of drug houses.

Now, here is the bitter bit. His partner in all of this (according to the Kefauver testimonies) was the Editor-in-Chief of MD, the man who had invited me and other Canadian physicians to become dummy members of the Editorial Board of their Canadian version. That is the second, and by all odds, the most important part of my thesis. These para-medical magazines are not only concentrated doses of drug advertising disguised in a capsule of

pseudo-culture but part of a commercial apparatus that has infiltrated many areas previously under the protection of the medical profession.

There are still a great many important questions left unanswered now that the Kefauver hearings have ended. Who are the real bosses of MD and its publishing empire? Sufficient evidence is available to predict the existence of a subterranean network with influence, if not control, in areas such as the U.S. Food and Drug Administration, advertising agencies specializing in drug accounts and medical and para-medical publications. An example of the latter is reflected in a recent editorial "Early this year, a most distinguished bloc of medical journals was sold to an organization that began its corporate existence selling mailing lists to industry. It is now a prosperous publishing-advertising-promotional combine that controls the entire operation from the inception of the promotional idea in the copywriters mind to the delivery of the journal to your desk".[1] The control may encompass not only the promotional aspects; "the inception of the idea in the copy-writer's mind to the delivery of the journal to your desk" but, to a significant degree, may influence the manufacture of the product and its distribution and dispensing through your conscious (or unconscious) co-operation. Is it possible that all this is under unified control in some areas at the present time. If so, the combine does everything except take responsibility for the waste, the bad therapeutics and the occasional unnecessary death that results from this 'streamlining of drug distribution'.

John Lear's articles "Public Health at 7½ Per cent" (S. R. June 4, 1960), The Drug Makers and the Government—Who Makes the Decisions (S.R. July 2, 1960.) and the pertinent portions of the reports of the Kefauver hearings (Hearings, S. Res. 238, Part 22, May 17, 18, June 1, 2, 3 and 6, 1960) give the distinct impression that there is little to choose between the willingness, if not eagerness, with which the ethical drug industry and the medical profession have invited the duping, cucolding and cheating they received at the hands of these manipulators. The drug industry paid them million of dollars and got little from it but some transient advantage in the market-place and a permanent bad name before the public. Despite this the industry and organized medicine has, in the past, risen to the defense of their traducers. Individual physicians may well rise again, after reading this essay, from confused and mistaken motives, to the support of those who hold the physician and his tradition of service in contempt.

The end of the story is not yet. The average physician is not going to return MD unopened because of this account or even stop writing Dr. Marti-Ibanez 'thank-you-for-tickling-my-ego' letters. The threat to our integrity is *not* in one slick-sick magazine, one physician-promotor, one government official in a position of vital public responsibility bought outright or one group of medical journals passing onto the possession of the entrepreneur. It is the atmosphere; the steady infiltration of our affairs by the commercial man with his ideals and his scale of values, the steady eroding of that part of our professional judgment which is exercised in the realm of therapeutics. One may soon have to paraphrase John Lear's question to read "The Sales Departments of the Drug Houses or the Physician—Who Chooses the Therapy?"

But on second thought, all this took place in the U. S. of A. So why worry?

Yours for a professional life
free from baksheesh and payola

BROTHER TIMOTHY

WHY WORRY? HE'S NOT ACTUALLY PRACTICING MEDICINE!

External Cardiac Massage: A new concept which could revolutionize treatment of many cases of cardiac failure is the subject of a new film released by Smith Kline & French, a Montreal pharmaceutical manufacturer. The film, "External Cardiac Massage," describes the recently developed technique by which hearts that have stopped beating may be started again without opening the chest, exposing the heart and actually massaging it. Produced in cooperation with the developers of the technique—R. Jude, W. B. Kouwenhoven and G. Guy Knickerbocker, all of the Johns Hopkins Medical Institutions—"External Cardiac Massage" shows how the technique substitutes externally applied pressure for the rhythmic contractions of normal heart muscle, thereby maintaining circulation at a level sufficient to sustain life. This technique, which has been termed "strikingly effective," was used in more than one hundred cases of cardiac arrest at Johns Hopkins Hospital. Sixty-two per cent of the cases were successfully resuscitated to their previous cardiac and central nervous system status. The new film illustrates how manual depression of the lower sternum compresses the heart, forcing blood into the pulmonary and systemic vessels. Release of pressure allows the chest to expand and the heart to fill again. If begun within four minutes after cardiac arrest, the technique combined with ventilation of the lungs, may literally reverse the death process.

Produced by Smith, Kline & French as the fourth in medical teaching films for professional audiences only, the 21 minute, color and sound film is available on a free-loan basis from local representatives of the pharmaceutical firm or directly from Smith Kline & French, 300 Laurentian Blvd., Montreal. The films contain no product references.

Cape Breton Medical Society

Dr. Michael Kaye, of the Montreal General Hospital addressed the Society on April 27 on, "Present Concepts in the Diagnosis of Renal Disorders." This program was under the auspices of the Dalhousie Post-Graduate Committee.

Dr. Austin Macdonald and Dr. Trask have recently opened practice in Sydney, specializing in Internal Medicine.

Cumberland Medical Society.

Dr. Norman H. Glen, Amherst, has recently completed a three month course in anaesthesia at the Victoria General Hospital, Halifax, and returned to his practice.

Dr. J. E. Park, Oxford, has been awarded Senior Membership in The Nova Scotia Medical Society.

Halifax Medical Society

April 26, 1961—The annual business meeting was held at the Dalhousie Public Health Clinic. Committee reports were presented by Drs. F. M. Fraser on Maritime Medical Care, F. J. Barton on the April 22, 1961 executive meeting of The Medical Society of Nova Scotia, E. F. Ross on the mediation committee, J. A. Myrden on membership (219 active, 10 honorary and life, 8 new, 3 deaths) and A. S. Wenning on the treasury. (We would still like to know what secretarial services "in the broadest sense" means). The nominating committee under Dr. J. W. Reid brought in the new slate of officers

President, Dr. F. J. Barton; Vice-President, Dr. K.M. Grant; Secretary Dr. J.A. Myrden Treasurer, Dr. A. J. Brady. On the executive were: Drs. D. M. MacRae, J. H. Charman, A. W. Titus, J. M. Snow,F. M. Fraser, I. A. Perlin, and C. A. Gordon. The representatives to the Nova Scotia Medical Society executive will be: Drs. D. M. MacRae, F. J. Barton, and K. M. Grant.

May 6, 1961—Annual Dinner Dance and Installation of Officers of the Society was held at the Lord Nelson Hotel. Some 93 members attended, accompanied by their wives.

The Grace Maternity Hospital, plans a million and a half dollar expansion and renovation program in the very near future. The structure will be completed in about 18 months from the date of commencement. The new six storey, west wing will include six, 4-bed wards, three 3-bed wards, 19 semi-private, and 40 private rooms, with total accommodations of 111 beds; nurseries with total accommodation for 153 bassinets; sun room, treatment rooms, kitchens, cafeteria and dining room, and laundry. Following completion and occupation of the new wing, the older sections of the Hospital will be completely renovated and remodeled, including a new, spacious entrance from University Avenue, a new administrative wing, and extension to existing Summer Street wing. Residential accommodation will also be provided for 60 nurses. On completion of the entire project, Halifax will have one of the most modern and attractive maternity hospitals on the continent.

Dr. H. P. Poulos, Dartmouth will spend the next six months in Great Britain and Holland studying the psychiatric hospital system in those countries. Four of these months will be spent with Dr. Duncan MacMillan, Department of the Mapperley Hospital in Nottingham, who has been one of the foremost advocates of the open hospital system.

May 12, 1961—An article in the Halifax Mail-Star pointed out that "extension of the Victoria General Hospital to approximately 1,000 beds, to which the Government agreed last Fall, is in peril. Last February, Health Minister Donahoe, mentioned rising costs as the reason to cut the number to 918. At the moment, Government is considering to revise the figures downward to 850, the original plan, which the medical profession considered grossly inadequate. The Hospital now has 558 beds. The original proposal was for a 10 storey structure. A thousand beds would require two additional storeys. The medical staff of the Hospital and The Halifax Medical Society, through a joint committee, is reported to be pressing its original stand that the ability of the Hospital to serve the public, demands the expansion to 1,000 beds. In spite of all arguments in favor of the larger capacity, the spiralling cost of hospital construction is going to play a big part in the Government's decision. Although no figures have been given in recent weeks, the estimated cost of the expansion, even at 850 beds, is reported to have gone well beyond the $7,500,000 estimated last fall. This is not entirely due to rising costs, but also to constant technical advances without which the hospital could not be considered up to date."

Nova Scotia Association of Pathologists

Dr. C. D. Chipman, Assistant Pathologist at the Pathology Institute, Halifax, and Assistant Professor of Pathology at Dalhousie University, leaves for Boston, Mass. about the end of May. Dr. Chipman will take up the appointment of Assistant Pathologist at the Malden General Hospital, and Assistant Professor of Pathology at Tufts Medical College. Dr. Chipman was also Secretary of the Nova Scotia Association of Pathologists.

University

May 5, 1961—An agreement was signed between Dalhousie University and the Halifax Infirmary whereby the Infirmary became a teaching hospital for Dalhousie Medical School. Among those taking part in the signing ceremonies were: Sister Catherine Charles, Superior of the Halifax Infirmary; Sister Catherine Gerard, Secretary of the Halifax Infirmary Board of Governors, Donald MacInnes, Q.C., Chairman of the Dalhousie Board of Governors, Dr. A. E. Kerr, President of Dalhousie University, Dr. C. B. Stewart, Dean of Medicine, R. J. Flinn, Q.C., Chairman, Halifax Infirmary Board of Governors, and Dr. F. J. Barton, Chairman of the liaison committee.

May 18, 1961—Among those receiving honorary degrees at the convocation of Dalhousie University will be Drs. H. B. Atlee, and Norman H. Gosse.

Dr. J. O. Godden, Associate Professor of Preventive Medicine, leaves Halifax at the middle of June for Toronto, where he will become Assistant Medical Editor of the Canadian Medical Association Publications. (Editors Note: Dr. Godden was for several years an Associate Editor of the Nova Scotia Medical Bulletin and for some months the acting Editor, and his enthusiasm and hard work will be sorely missed by the Editorial Board.)

Births

To Dr. and Mrs. Leon Cudkowicz (nee Chandler) a son, Alexander Raimes, Grace Maternity Hospital, April 15, 1961.

To Dr. and Mrs. L. D. MacKenzie (nee Mary Creighton) a daughter, Saint Elizabeth Hospital, North Sydney, N. S. on April 23, 1961.

To Dr. and Mrs. Robert K. Shapter (nee Maureen Currie, R.N.) a son, Douglas Paul, Sr. Clare's Mercy Hospital, St. John's, Nfld., April 21, 1961.

To Dr. and Mrs. Arthur Shears, a daughter, Grace Maternity Hospital, April 29, 1961.

Congratulations

To Dr. Nicholas Destounis, Halifax, who by a recent resolution of the Medical Specialties Board of the ministry of Social Welfare of Greece was granted the certification in the medical specialty of Neurology and Psychiatry.

To Dr. Peter A. MacGregor, Halifax, on the award of a Canadian Arthritis and Rheumatism Fellowship for a year's post-graduate training, under Dr. Wallace Graham, at Sunnybrook D.V.A. Hospital, Toronto.

To Dr. and Mrs. Donald M. MacRae, Halifax on the marriage of their daughter, Elizabeth Anne, to George William MacDougall, Moncton, a final year Dalhousie Law Student, at the Presbyterian Church of Saint David, Halifax, on June 3, 1961.

To Dr. and Mrs. J. E. H. Miller, Halifax on Mrs. Miller's winning first prize at St. Mary's University Art course recently. Mrs. Miller will be given a scholarship for a full year of tuition.

Coming Events

September 25-29, 1961—The annual "Week in Anaesthesia" conducted by the Department of Anaesthesia through the Post-Graduate Division, Faculty of Medicine, Dalhousie, will be held in the Victoria General Hospital. Detailed programs will be mailed to all practitioners at the beginning of September. If you plan to attend, please notify the Division at an early date as the numbers to be accommodated are limited.

October 2-6, 1961—47th Annual Clinical Congress of the American College of Surgeons at Chicago, Illinois. Address inquiries to Dr. W. E. Adams, Secretary, American College of Surgeons, 20 East Erie St., Chicago 11, Illinois.

November 13-18, 1961—Canadian Heart Association and National Heart Foundation of Canada, joint annual and scientific meetings in Vancouver, B.C. Address enquiries to Dr. J. B. Armstrong, National Heart Foundation of Canada, 501 Yonge St., Toronto 5, Canada.

October 7-13, 1962—The 4th World Congress of Cardiology will be held at the Medical Centre, Mexico City, Mexico. Address enquiries to the General Secretary: Dr. Isaac Costero, 4th World Congress of Cardiology, Institute N. De Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D.F.

Obituary

Dr. W. A. MacLeod, 78, New Glasgow, died in hospital on April 12, 1961. He, was a former Progressive Conservative member of the Nova Scotia Legislature and a practicing physician for nearly 50 years. He represented Pictou East, in the Legislature for a single term, being elected in 1956 after being defeated in 1949 and 1953 and again in 1960. He had been known as "the country doctor of Pictou County" during his long practice. He is survived by his wife and one son.

Sympathy

The Editors of the Nova Scotia Medical Bulletin extend sympathy to Dr. and Mrs. A. Craig Campbell, New Glasgow, on the recent death of their ten months old baby girl.

To Dr. and Mrs. T. W. Gorman, Antigonish, on the recent injury to their 2 year old child, hit by a car.

INFECTIOUS DISEASES—NOVA SCOTIA
Reported Summary for the Month of March, 1961

Diseases	NOVA SCOTIA 1961 C	NOVA SCOTIA 1961 D	NOVA SCOTIA 1960 C	NOVA SCOTIA 1960 D	CANADA 1961 C	CANADA 1960 C
Brucellosis (Undulant fever) (044)	0	0	0	0	5	6
Diarrhoea of newborn, epidemic (764)	0	0	0	0	6	5
Diphtheria (055)	0	0	0	0	6	0
Dysentery:						
(a) Amoebic (046)	0	0	0	0	0	0
(b) Bacillary (045)	0	0	0	0	64	222
(c) Unspecified (048)	36	0	0	0	66	23
Encephalitis, infectious (082.0)	0	0	0	0	0	1
Food Poisoning:						
(a) Staphylococcus intoxication (049.0)	0	0	0	0	3	0
(b) Salmonella infections (042.1)	1	0	0	0	68	0
(c) Unspecified (049.2)	0	0	0	0	1	45
Hepatitis, infectious (including serum hepatitis) (092, N998.5)	71	0	154	0	779	598
Meningitis, viral or aseptic (080.2, 082.1)						
(a) due to polio virus	0	0	0	0	1	0
(b) due to Coxsackie virus	0	0	0	0	2	0
(c) due to ECHO virus	0	0	0	0	0	0
(d) other and unspecified	0	0	0	0	10	22
Meningococcal infections (057)	0	0	0	0	14	12
Pemphigus neonatorum (impetigo of the newborn) (766)	0	0	0	0	0	0
Pertussis (Whooping Cough) (056)	0	0	7	0	258	410
Poliomyelitis, paralytic (080.0, 080.1)	0	0	0	0	4	25
Scarlet Fever & Streptococcal Sore Throat (050, 051)	48	0	131	0	1591	2831
Tuberculosis						
(a) Pulmonary (001, 002)	16	1	14	1	0	424
(b) Other and unspecified (003-019)	1	0	6	0	0	113
Typhoid and Paratyphoid Fever (040, 041)	0	0	0	0	16	45
Venereal diseases						
(a) Gonorrhoea — Ophthalmia neonatorum (033)	0	0	0	0	0	0
All other forms (030-032, 034)	9	0	27	0	1290	1046
(b) Syphilis — Acquired—primary (021.0, 021.1)	0	0	0	0	0	0
— secondary (021.2, 021.3)	0	0	0	0	0	0
— latent (028)	0	0	0	0	0	0
— tertiary — cardiovascular (023)	0	0	0	0	0	0
— ,, — neurosyphilis (024, 026)	0	0	0	0	0	0
— ,, — other (027)	0	0	0	0	0	0
Prenatal—congenital (020)	0	0	0	0	0	0
Other and unspecified (029)	3	0	1	0	191	135*
(c) Chancroid (036)	0	0	0	0	0	0
(d) Granuloma inguinale (038)	0	0	0	0	0	0
(e) Lymphogranuloma venereum (037)	0	0	0	0	0	0
Rare Diseases:						
Anthrax (062)	0	0	0	0	0	0
Botulism (049.1)	0	0	0	0	0	0
Cholera (043)	0	0	0	0	0	0
Leprosy (060)	0	0	0	0	0	0
Malaria (110-117)	0	0	0	0	0	0
Plague (058)	0	0	0	0	0	0
Psittacosis & ornithosis (096.2)	0	0	0	0	0	0
Rabies in Man (094)	0	0	0	0	0	0
Relapsing fever, louse-borne (071.0)	0	0	0	0	0	0
Rickettsial infections:						
(a) Typhus, louse-borne (100)	0	0	0	0	0	0
(b) Rocky Mountain spotted fever (104 part)	0	0	0	0	0	0
(c) Q-Fever (108 part)	0	0	0	0	0	0
(d) Other & unspecified (101-108)	0	0	0	0	0	0
Smallpox (084)	0	0	0	0	0	0
Tetanus (061)	0	0	0	0	0	0
Trichinosis (128)	0	0	0	0	1	0
Tularaemia (059)	0	0	0	0	1	0
Yellow Fever (091)	0	0	0	0	0	0
N.S.U.			3			

C — Cases D — Deaths

*Not broken down **Not available

C.D.C. 2

figures not all available for Nova Scotia, 1961.