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EDITORIAL

THE DALHOUSIE REFRESHER COURSE

A recent editorial in this Bulletin stated "We cannot merit (public) faith unless we demonstrate the ability and desire to maintain the highest standards of medical practice through the exercise of greater self discipline." Vollan states "One of the most important factors in maintaining high standards of medical care, is the continuing education of the physician throughout his professional career."

Medical educators have long been aware of their responsibility in the continuing education of the physician. Since 1922 the Dalhousie refresher course has made a period of training readily available to the doctors of the Atlantic Provinces. Since 1951 the Dalhousie post-graduate committee has developed a program ranging from short courses in Halifax to a variety of activities throughout all four Atlantic provinces.

Organized medicine also accepts its responsibility in this regard. The Provincial Medical Board sponsors "The John Stewart Memorial Lecture" during refresher course week. The Canadian Medical Association makes an annual post-graduate education grant to each of its divisions. The Medical Society of Nova Scotia supplements this grant with another, and turns both over to the Faculty of Medicine, Dalhousie University, in partial support of the faculty's post-graduate division. A standing committee of the society concerns itself with post-graduate medical education. The prime objective of the Canadian College of General Practice is "to establish an academic body with broad educational aims—to arrange for the presentation of post-graduate education for general practitioners."

But is the individual practitioner accepting *his* responsibility? It has been recommended that one week or fifty hours of formal post-graduate medical education each year be the aim of every doctor. An extensive survey carried out in the United States in 1953 based this recommendation on the performance of a sample of five thousand physicians studied, who although they spent less than thirty-two hours a year at post-graduate course attendance, felt they should devote eighty-four hours a year to this form of education. The same study indicated that, in terms of all practitioners, average attendance at refresher courses is under nine hours a year. Is the Nova Scotian average better than this? There are no statistics available to indicate that it is. In fact last October only one practitioner in ten from the province attended the Dalhousie refresher course full time. Does this mean that the changing patterns of medical practice, the increasing opportunities for post-graduate education in Nova Scotia, the ease of travel to world famous centers of medicine, have combined to outmode this outstanding course?

Or does it mean that the doctors of Nova Scotia need to reassess their attitudes toward the need for continuation of medical education?

L.C.S.

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DOCTORS, PATIENTS AND PERSONS

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The physician, by the very nature of his profession, is deeply involved in the area of personal relations. It is in this field that stock answers to problems are hard to come by, and doubts and frustrations can breed and flourish. I recall once listening to a distinguished philosopher casting doubt on the attempts of certain scholars to work out a coherent philosophy of history. "The difficulty about philosophies of history," he said, "is man himself, because nobody knows what the confounded fool will do next." And he added. "This is why man continues to be at once the problem and the glory of creation."

The problems to be considered in this paper are essentially personal ones: and, while no original solutions are likely to be offered, the idea is here advanced that ultimately persons cannot be classified or rendered up statistically. This means that there is a definite limit to the application of any formula or rule in dealing with people; and that, while a scientific point of view will carry us some distance, it cannot quite make up for intuitive gifts, a certain artistic "feeling" for a situation and some developed common sense. There is no evidence, I think, that the latter necessarily goes along with a university or professional degree.

The actual questions that prime the pump for this discussion are, "When should the patient be told the full truth about his condition—and how should he be told? This question becomes particularly pointed if the "truth" involves information about extensive dismemberment or the presence of a mortal disease. A second and related question is one that is sometimes heard in large hospitals, "How can I really find out what my condition is? I never get a chance to talk to the doctor who did the operation?"

Let us take the first and much more difficult question first. Here there is no answer that universally holds, because, while statistics about cases may be helpful, there is no such thing as an intrinsically average person—at least, thank God, not yet! But there are some considerations that will be obvious.

For example, there can hardly be any dispute that, where the recovery of the patient is at stake, the whole truth, as the doctor understands it, must be told. It is certainly no kindness to attempt to ease the blow for the victim of tuberculosis, let us say, by speaking about spending a few weeks in bed, when the likelihood is that he must spend at least a year away from home. There is a comment that might be ventured here. The capacity to absorb "the truth" will vary in different patients. For some individuals, the news that the diagnosis is tuberculosis or that a limb is going to be lost may cause such a shock to the mind that faculties for grasping this new and stern situation may be completely inhibited. On the basis of personal discernment, the doctor may decide not to tell the whole story at the first interview. But the whole truth must eventually be told.

Of course, the "whole truth" should consist of "good" as well as "bad" news. The doctor may well present a sort of profit and loss account to the patient's understanding. While the patient will have large thoughts of loss of time or loss of limbs sitting upon his mind, he can well be reminded of the

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gains in health and life if proper treatment be accepted and followed, along with such promises of future usefulness that the doctor can honestly see as possibilities. Thus, in his moments of lonely, personal conflict—and it *can* be both lonely and bitter—the patient will have the opportunity to meditate upon the positive as well as the negative aspects of his future.

The problem of telling a patient that death is to terminate his illness is one that, in my judgment, has no single complete answer. Here, if anywhere, circumstances will alter cases. A moment's thought will convince us all that one who brings news of the imminence of death is the bearer of heavy tidings. Although we know that death is one of the few universal experiences, it is, by its very nature, the final destruction and humiliation of our earthly life. Paul Tillich calls death "*the* ontological shock," i.e. the shock that strikes at the very roots of being. Nobody can come forward nonchalantly with a glib formula here. In my observation, clergymen and physicians, who may have more than a nodding acquaintance with death, do not react in any way that is significantly different from the ordinary run of men when death stalks their own households or their own bedsides; and no one needs to be ashamed of that. For Christians, the record that tells of the approach of death to One who is believed to be God as well as Man, does not scruple to tell of the terrible agony in the Garden as death loomed up on the path.

Yet sometimes, the heavy news must be broken. Plainly, if there are personal affairs to be set in order or final obligations to be fulfilled, the patient's condition will have to be explained to him. The patient as a person has certain duties to the society he is quitting and, according to conscience, certain duties to God as he understands them. He has basic human rights which, in these special circumstances, the physician may have a unique responsibility to maintain. It would seem wise to consult with the patient's family and probably with his clergyman, as the need for a decision approaches.

There are the other cases such as we have all witnessed, when a patient passes on out of this life with little consciousness that the last enemy of mankind is at the gate. If such considerations as have been mentioned in the paragraph above do not weigh, why unveil the death's head to maintain a rule? Sometimes a kindly providence seems to be in league with nature and the physician's art to give one an easy passage. In Bunyan's great dream there were some pilgrims, and not the least faithful, who had a stormy passage over the last, dark river; but some made their way almost dry-shod.

A complication of the problem arises with a patient who has cancer which appears to be beyond the chance of successful treatment. For some, the idea of cancer is more repugnant than the idea of death itself, perhaps because of the fear of unrelievable pain. It may be that assurance of the efficacy of drugs to relieve suffering may help, but for some individuals the very word "cancer" conjures up such irrational fears that words do little to allay them. I recall the opinion of a physician whose wisdom I have respected in many matters. "I believe," he said, "that if a patient has the courage to ask the question 'Have I cancer?', and 'Am I going to live?', he should be told the whole truth as we know it. Otherwise, unless there be some special reason, he should not be told." In this opinion I would concur. I would suggest that we do not underestimate the immense resources of strength and courage that reside in a lot of seemingly ordinary people. When brutal facts are to be faced they often face them better than the superficial accidents of life.

Our other problem has to do with the complaint that patients are deprived of knowledge and assurance about their condition because of a break in the

personal relationship between the patient and the doctor who is in charge of the case. It is doubtful if such situations can be very common in an area such as Nova Scotia, but there is a possibility that they can become more common.

The medical profession, as I understand it, has rightfully been anxious about any sort of organizing of the practice of medicine that would tend to submerge the personal factor in the relationship between doctor and patient. This is a principle worth contending for—and there are many adversaries. There is nothing original in calling attention to the modern trend toward a mass society arranged in increasingly impersonal forms. The pressure of this mass society will touch us all, and, as regards the medical professions, there will be pressure to conform to some image (usually manufactured in metropolitan centers) of the medical "Organization Man." There is bound to be a struggle to maintain personal communication with patients in hospitals now that the State has entered the field and hospitals are becoming much larger and more complex.

Once again the obvious has to be remembered, that the Hospital was made for man, and not man for the Hospital; and again, that the patient is a person before he is a patient—he is to be treated individually and not statistically. Any highly organized institution is especially vulnerable to the threat of becoming more and more mechanical and self-centered as it becomes less flexible and less touched with a whiff of unique, wonderful, vitalizing humanity. Those whose work is daily in large hospitals may sometimes forget how strange and how terrifying this hospital world can be to one who is encountering it for the first time, and encountering it from the situation of one who is already physically worn and anxious. And if the patient gets the idea that his case is being decided by a remote expert who reads his files but never reads him, one need not be surprised that resentment should be voiced. Actually, any of this is a dreadful exaggeration in so far as it concerns any hospital that I know anything about in Eastern Canada, but it can happen in any place where regard for mere streamlining of organization becomes the main concern. *The New Yorker Magazine* published, about two years ago, a bit of verse by Morris Bishop entitled *The Perforated Spirit.* It reflects the wail of a lost soul submerged in a highly institutionalized society,

> The fellows up in Personnel
> They have a set of cards on me.
> The sprinkled perforations tell
> My individuality.
>
> And what am I? I am a chart
> Upon the cards of I.B.M.
> The secret places of the heart
> Have little secrecy for them.
>
> Monday my brain began to buzz;
> I was in agony all night.
> I found out what the trouble was:
> They had my paper clip too tight.

All of this is based upon a philosophy regarding the unique importance of personality. It would require a much longer consideration than is possible

in an article such as this, and by a much more knowledgeable and wiser writer, to develop the subject in all its bearing. The deep ideological conflicts of our time have their roots here, as well as our specific personal problems. Dr. Carl Jung has some recent words in his book, *The Undiscovered Self* which are much more cogent than mine:

"In view of the fact that in principle, the positive advantages of knowledge work specifically to the disadvantage of understanding, the judgement therefrom is likely to be something of a paradox. Judged scientifically, the individual is nothing but a unit which repeats itself *ad infinitum* and could just as well be designated by a letter of the alphabet. To understanding, on the other hand, it is just the unique individual human being who, when stripped of all those conformities and regularities so dear to the heart of the scientist, is the supreme and only object of investigation. The *doctor above all* should be aware of this contradiction. On the one hand he is equipped with the statistical truths of his scientific training; and on the other, he is faced with the task of treating a sick person, who, especially in the case of psychic suffering, requires individual understanding. The more schematic the treatment is, the more resistance it—quite rightly—calls up in the patient, and the more the cure is jeopardized."

But the sort of understanding that Jung speaks about is something different from the understanding of a *case*, it is the understanding of a *Person*. Such understanding will be greatly helped by the normal course of training, but it is finally only grasped by the relationship between doctor and patient on a distinctly personal level. Our own great Canadian, Sir William Osler, emphasized this in his address on The Master Word in Medicine to the University of Toronto as long ago as 1903, "Often the best part of your work will have nothing to do with potions and powders, but with the exercise of an influence of the strong upon the weak, of the righteous upon the wicked, of the wise upon the foolish."

Idiopathic Dilatation of the Pulmonary Artery. Deshmukh, M., et al. Circulation. 21: 710, (May) 1960.

Thirteen patients with idiopathic dilatation of the pulmonary artery are described in this paper, and their clinical roentgenologic, electrocardiographic, and hemodynamic features are elaborated. *Absence or mildness of symptoms* was the most significant finding in this series. A pulmonic systolic murmur was constantly present. The roentgenogram showed various degrees of dilatation of the pulmonary artery in the presence of normal heart size. The electrocardiogram was normal. The hemodynamic studies showed a mild systolic pressure gradient across the pulmonic valve in some cases in the presence of normal right ventricular pressure. The authors suggest that idiopathic dilatation of the pulmonary artery is a benign lesion and does not affect cardiac function to any appreciable degree.

S.J.S.

SEROLOGIC TESTS IN RHEUMATOID ARTHRITIS*

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A number of tests have been devised in an effort to provide a laboratory reaction which would identify rheumatoid arthritis and differentiate between it and other painful musculo-skeletal conditions. How much has been accomplished?

The problem is that students of the rheumatic diseases are not really prepared to agree among themselves on the exact definition of rheumatoid arthritis.[1] The American Rheumatism Association has set up criteria for the diagnosis of definite, probable and possible rheumatoid arthritis,[2] but even with these criteria it is possible that what one person would diagnose as rheumatoid disease would not be acceptable to another clinician. It is therefore difficult to judge whether any given laboratory reaction is falsely positive or falsely negative in the early or borderline case.

The first achievement in the direction of finding a diagnostic test for rheumatoid arthritis was reported in 1931, when it was found that the sera of some patients with rheumatoid arthritis would agglutinate streptococci.[3] This led to the suspicion that a particular streptococcus was pathogenic in rheumatoid disease but later it was found that most Group A. hemolytic streptococci, a few pneumococci and staphylococci could be substituted in the test.[4] Eventually, two factors were found in the serum of rheumatoid patients which appeared to take part in the reaction. The first of these was a non-specific antibody which was presumed to coat the streptococci or other particles, and the second was a water-insoluble factor which was thought to be specific for the disease, and which caused the coated particles to agglutinate.[5]

In the early 1940's, Waaler, a Scandinavian, first called attention to the capacity of rheumatoid sera to agglutinate sheep red blood cells which had been sensitized by exposure to the serum of a rabbit which had previously been injected with sheep erythrocytes.[6] His work escaped widespread attention. The phenomenon accidentally came to the attention of Rose, Ragan, Lippman and Pierce in 1948,[7] and their work with this Differential Sheep Cell Agglutination test led to its widespread utilization as an interesting research weapon in the study of rheumatoid arthritis. The test has been called the Waaler-Rose reaction.

There is in some sera, whether derived from healthy persons or from persons suffering from rheumatoid arthritis, sufficient heterophile antibody to cause the agglutination of untreated sheep red blood cells suspended in saline. Sera from 30-65% of rheumatoid patients, however, will agglutinate standard sensitized sheep erythrocytes in much higher dilutions than those in which they will cause untreated cells to clump. The differential between the agglutination of untreated cells and the agglutination of sensitized cells is the basis for the interpretation of the test. Locally, we have considered that when the agglutination of sensitized cells reached a titre of 1 in 16, with a differential of 4, between the figures for agglutination of the sensitized and unsensitized cells, the test could be considered weakly positive.

The emergence of the sensitized sheep cell agglutination reaction led to the hope that it would prove to be specific for the disease, and would remain essentially unchanged while the indicators of activity of the inflammatory

*Presented at the first Clinical Meeting of the Society of Internal Medicine of Nova Scotia, Kentville, N. S. March 4, 1960.

process might alter toward normal as the patient improved. That is the rehumatoid patient might get better and have a normal sedimentation rate yet still have a positive sheep cell test. This would suggest that the serologic reaction constituted a fundamental part of the disease process rather than a response on the part of the host to the presence of the disease. There is, however, mounting evidence that the sheep cell test and its modifications can revert to negative under treatment which produces a remission of the patient's symptoms and signs.[8]

The Sheep Cell Agglutination Test proved to be negative in Marie Strumpell spondylitis, in psoriasis with "rheumatoid" arthritis, and in patients with juvenile rheumatoid arthritis. It proved to be most strongly positive as a rule in patients with far advanced active disease who had nodules and splenomegaly associated with their rheumatoid process. False positive reactions occurred in 2-5% of individuals tested. In addition, positive reactions occurred unexpectedly in 3 groups of patients: First, in 10% of patients with rheumatic fever especially in cases of long duration; second, in cases of systemic lupus erythematosus in which the joint inflammation was a prominent finding, and third, quite frequently in polyarteritis nodosa.[9] Some of the unexpected positive reactions, that is positive reactions occurring in individuals who could not be shown to have rheumatoid arthritis, occurred in the relatives of patients with sero-positive rheumatoid disease. The incidence of positivity in this group was significantly higher than in the general population. It is interesting that the relatives of sero-negative rheumatoid patients do *not* show this high incidence of positive sheep cell agglutination tests. Rheumatoid positivity seems to "run in families", but no-one has yet demonstrated a Mendelian pattern.[10]

The original Sheep Cell Agglutination Test which employed rabbit serum and sheep erythrocytes as well as the human serum to be tested, had obvious disadvantages in the introduction of non-human constituents. A significant advance occurred when it was demonstrated that the agglutination reaction could be inhibited by a substance which was present in human Gamma Globulin.[11,12,13] It was postulated that the gamma globulin inhibited agglutination by engaging in competition with the sensitized sheep cell for the Rheumatoid factor. This suggested that a test might be developed on the basis of the affinity of gamma globulin for the rheumatoid factor. It was found possible to coat *tanned* sheep red blood cells with human gamma globulin, instead of rabbit anti-serum, and when rheumatoid serum was mixed with these cells agglutination occurred. This test became known as the F.2 tanned Sheep Cell Agglutination Reaction, the F.2 referring to Cohn fraction 2 of human gamma globulin. It was found possible also to eliminate the tanned sheep red blood cells, either substituting latex particles (the so-called Latex Fixation Test) or in a certain percentage of sera a precipitin reaction was possible between the patient's serum and Cohn fraction 2, (F.2 Precipitin Test).

A positive Sheep Cell Agglutination test in Rheumatoid Arthritis depends upon the presence of "Rheumatoid Factor." The term "Rheumatoid Factor" has been applied to a variety of macroglobulins. The active factor itself is a fast-moving gamma globulin which on ultra-centrifugation is found to have a Svedberg constant of 19.S. This macroglobulin may combine with 7.S Gamma Globulin in a non-aggregated form, to produce a soluble complex with a Svedberg constant of 22.S which is also capable of behaving as "Rheu-

matoid Factor." The 19.S Globulin may also combine with "Reactant" to produce a precipitate.

"Reactant" appears to be macro-molecular aggregates of gamma globulin molecules, with sedimentation constants varying between 12 and 40, which, as mentioned above, has affinity for the Rheumatoid Factor.

The separation of proteins of normal and Rheumatoid sera by continuous-flow electrophoresis, has provided additional date concerning the characteristics of rheumatoid factor and the nature of rheumatoid serologic reactions. Two distinct inhibitors of these reactions have been demonstrated. One of these is "Reactant" which if present in excess will interfere with the demonstration of the rheumatoid factor. The second inhibitor has been discovered in the fractions containing alpha and beta globulins, and is much more potent than Reactant.[14] It is absent from sera containing large amounts of rheumatoid factor. The nature of the Type 2. inhibitor is not known, but its presence in the region of the Alpha and Beta Globulins again calls attention to the possible roles of polysaccharides in this disease. The identification of inhibitors has led to the development of "Inhibition Tests", which are producing very interesting findings. These tests are based upon the addition of unknown serum to a known positively-reacting system. That is to say, the unknown serum is mixed with a serum which is known to be capable of producing agglutination and therefore to contain rheumatoid factor in excess of inhibitors. If the addition of the unknown serum prevents agglutination from taking place, excess of inhibitor has been demonstrated in the serum to be tested. If the reaction remains positive it is presumed that there is not an effective amount of inhibitor in the serum to be tested. Absence of inhibitor has been demonstrated in this way in a wider variety of inflammatory connective tissue diseases, for example those conditions sometimes considered "variants" of rheumatoid arthritis, such as Marie Strumpell spondylitis, and psoriasis with "Rheumatoid" arthritis.

The positive demonstration of an inhibitor which is present in serum from normal persons and absent in those obtained from patients with rheumatoid arthritis, requires a re-evaluation of the significance of the agglutination reaction in rheumatoid arthritis. Is the inhibitor in some way neutralized by the appearance of rheumatoid factor during the course of the disease? Does the absence of Type 2. inhibitor cause rheumatoid arthritis by permitting a reaction to take place between serum protein components that are present in healthy individuals? Does the disease itself cause the absence of inhibitor?

The results of a study of 27 patients with agammaglobulinemia, by Good and Rottstein are extremely interesting.[15] Such patients possess minute amounts of gamma globulin in their serum. Of the 27 patients studied, 9 suffered from manifestations of mesenchymal disease, an incidence of 1 in 3. One had thrombotic thrombocytopenic purpura, 5 had classical rheumatoid arthritis according to the criteria of the American Rheumatism Association, 3 would be classified as probable rheumatoid arthritis by the same standards. In these patients tests for rheumatoid factor were negative. Attempts to demonstrate inhibition of agglutination, however, were also negative. It seemed safe to conclude that a disease clinically indistinguishable from rheumatoid arthritis existed in the absence of demonstrable rheumatoid agglutinins. Three of the patients developed clinically characteristic subcutaneous nodules, which upon biopsy were found to possess all of the morphological

features of rheumatoid nodules occurring in immunologically competent individuals. Investigation of the families of two adults in this series revealed an extraordinarily high incidence of Rheumatoid Arthritis among the members of both families. This, however, was not the case in the families of the children suffering from both congenital agammaglobulinemia and rheumatoid arthritis.

What have the serological tests in rheumatoid disease taught us? First, there are significant serological differences between classical rheumatoid arthritis, which tends to involve small peripheral joints, and the conditions which some people consider variants, such as Marie Strumpell Spondylitis and Psoriasis with chronic inflammatory arthritis. Rheumatoid factor being present in the former and absent in the latter two. Second, the agglutination tests are most strongly positive in rheumatoid disease involving extra-articular structures such as subcutaneous tissues, the reticulo-endothelial system (lymphadenopathy and splenomegaly), and the vascular system.[16],[17] Third, the various tests which have been devised are positive in the "diffuse collagen diseases," and particularly in rheumatoid arthritis. Fourth, we still do not know just how fundamental a part of these diseases is represented by the presence of rheumatoid factor or the absence of Type 2. inhibitor. It is probable that our understanding of the pathogenesis of diffuse collagen diseases would be greatly furthered by the precise identification of the substances which appear to have importance in the serologic reactions, rheumatoid factor and inhibitors.

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SYMPOSIUM ON OEDEMA

PART II: OEDEMA IN RENAL DISEASE

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The pathogenesis of Oedema in renal disease is not yet completely understood. However, the use of the electron microscope and an improved knowledge of the patho-physiology of the kidney has furthered our understanding of this manifestation of kidney damage. In order to better understand the altered physiology in renal Oedema, a brief review will be given of the structure and function of the basic unit of the kidney, the nephron.

The shortness of the renal arteries and also the branching of their tributaries at 90° angles delivers blood to the glomerulus under a relatively high hydrostatic pressure. After passing through a network of capillaries in the glomerulus, an efferent arteriole continues on to supply the tubule of this glomerulus. The filtering membrane of the glomerulus is composed of a porous inner capillary endothelial lining, an intact basement membrane and an outer epithelial layer which has pseudopodial attachments to the basement membrane.

The tubular part of the nephron is composed first of the proximal convoluted tubule which is lined with darkly stained cuboidal cells with a characteristic brush border. This leads into the loop of Henle which dips down into the medulla and then returns to the cortex near its origin to form a series of loops known as the distal convoluted tubule. These form the collecting tubules which eventually empty into the renal pelvis[1].

The formation of urine is initiated by the filtration through the glomerulus of a crystalloid solution[1]. This glomerulal filtration is fostered by the relatively high hydrostatic pressure of 70-80 mm. of Hg. in the capillaries of the glomerulus and also because approximately 25% of the cardiac output flows through the kidneys.

The filtrate is formed at a rate of 120 cc. per min., has a pH of 7.4, a specific gravity of 1.010 and contains such components as urea, glucose, creatine, sodium chloride and potassium. As the filtrate passes through the proximal convoluted tubule, glucose, ascorbic acid, pyruvate, lactate, and amino acids are actively reabsorbed as well as the filtered potassium. About 7 8 of the filtered water also diffuses from the tubular fluid in a passive process secondary to an active sodium reabsorption. About 40% of the filtered urea rediffuses back into the interstitium at this point.

The filtrate then passes through the loop of Henle and enters the distal convoluted tubule where sodium and water are under separate control. If water is to be removed, it is thought to be effected by stimulation of the neurohypophysis by hyperosmolarity of the blood. Antidiuretic hormone is released, causing reabsorption of water, probably by opening pores in the endothelium. This action may be mediated by hyaluronidase.

Sodium reabsorption is for the most part under the control of the recently discovered mineralocorticoid, aldosterone, which is thought to act throughout the whole tubule. The sodium ion of the tubular fluid is replaced on an exchange basis by potassium and/or hydrogen. The potassium which is found in the urine is thought to be actively secreted by the cells of the dis-

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tal tubule. The addition of hydrogen ion acidifies the urine and is made available by the action of carbonic anhydrase and the formation of the ammonium radical. These two reactions are outlined as follows:

1. $H_2O + CO_2 \xrightarrow{\text{carbonic anhydrase}} H^+ + H CO_3$

2. Glutamine $\xrightarrow{\text{Glutaminase}}$ Glutamic Acid $+ NH_4^+$

Inreaction (2) the ammonia then picks up a H ion and forms NH_4

Berliner[2] has evolved a very interesting counter-current theory to explain the dilution and concentration of urine. In brief, it is as follows. The filtrate presented to the loop of Henle is isotonic and as it passes through this segment of the nephron, solutes such as urea and sodium are lost into the interstitium from the tubular fluid. However, water does not follow as the loop of Henle is impermeable to water. This results in a diluted or hypotonic fluid which as it passes through the distal convoluted tubule may remain hypotonic or if A.D.H. is released, water will be allowed to escape into the interstitium which has an increased content of urea, sodium, etc. derived from tubular fluid at the loop of Henle. The solutes do not follow because of this relatively hypertonic interstitium. Thus the amount of water lost, if any, will determine the dilution or concentration of the urine. With this simplified outline of renal structure and physiology as a background, some of the factors involved in the Oedema noted as a part of certain diseases of the kidneys will be discussed.

The production of Oedema in acute glomerulonephritis involves capillary damage and a glomerulo-tubular imbalance. It has been postulated[1] that capillary damage is present because of the elevated protein content of the Oedematous fluid of patients with acute Bright's Disease. Furthermore, certain streptococci elaborate toxins which are capable of producing widespread capillary damage as in erysipelas and scarlet fever and it is postulated that this may occur with the immunity reaction to the streptococci which produce nephritis. Experimentally, Seegal and Bevans,[3] in microscopic studies on "Masugi" nephritis in animals, showed that damage to the basement membrane of capillaries occurred throughout the body. Recently Mellars and Ortega[4] have demonstrated localization of antibodies on the basement membrane of human capillaries in patients with acute glomerulonephritis. With the use of fluorescent-labelling technique, the antibodies were noted to be most heavily concentrated in the glomeruli.

The second factor involved in the Oedema of acute glomerulonephritis is glomerulo-tubular imbalance. Glomerular filtration is decreased through the damaged glomerular capillaries because of the swollen cells, debris and Oedema in the glomerular tuft. However, because the tubules[5] remain relatively undamaged they are able to carry on a normal reabsorption of water and salt. This leads to increased retention of salt and water which is distributed throughout the body as Oedema fluid. This widespread increase in interstitial fluid content is further enhanced by the fact that the damaged capillaries have allowed intravascular protein to escape into the extravascular tissues. This not only increases the osmotic pressure of the interstitial tissues, but also lowers the intravascular osmotic pressure.

These concepts are supported by the observations of Peters[6] who in a re-

view of 291 cases of acute glomerulonephritis noted that the administration of salt increased the Oedema. Eisenberg[7] also studied the plasma volume of patients with acute glomerulonephritis both during and after recession of Oedema and found the Oedema to be associated with a hypervolemia which he suggested was secondary to salt and water retention.

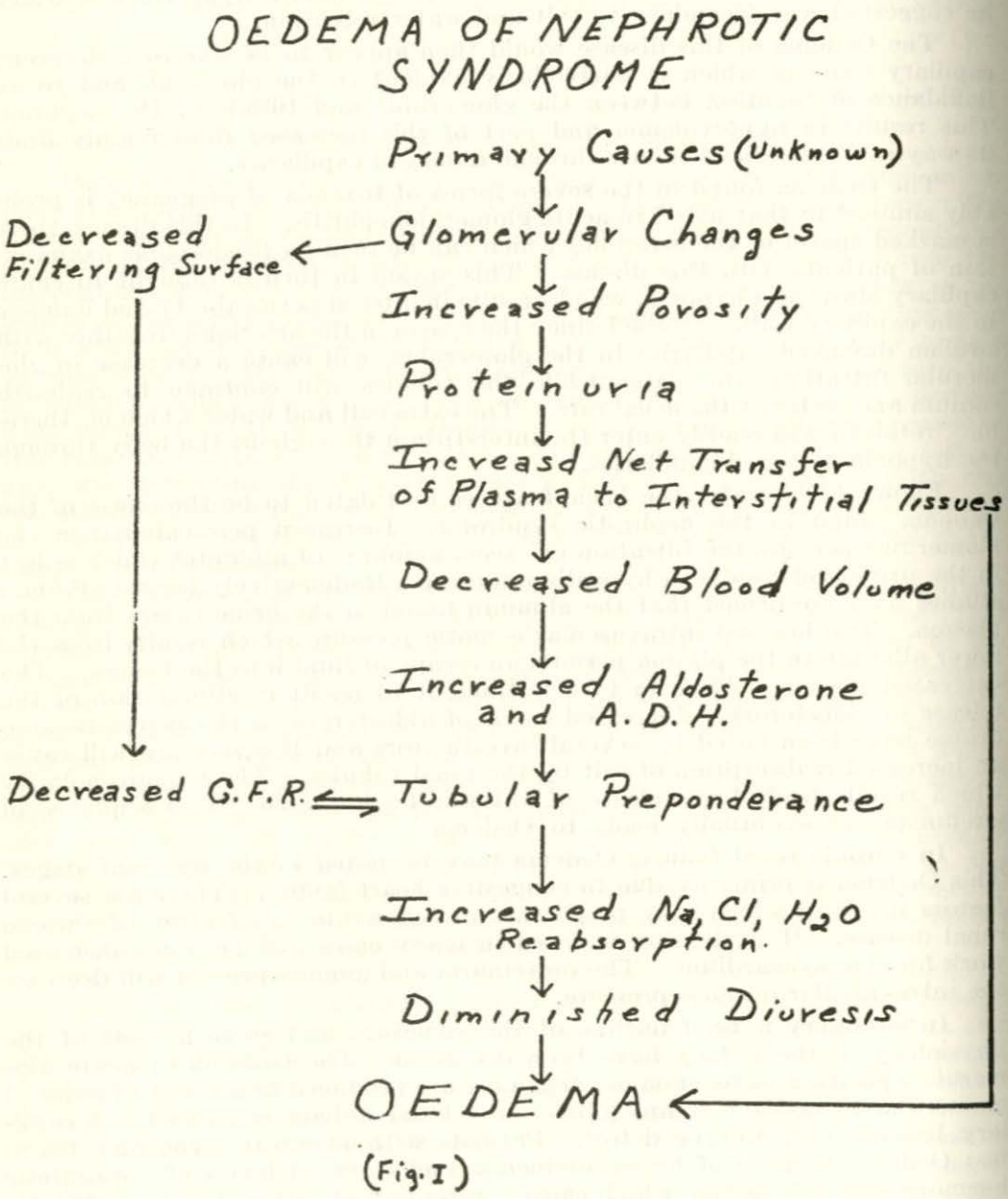
The Oedema of this disease would then appear to be due to widespread capillary damage which is particularly evident in the glomeruli and to an imbalance of function between the glomerulus and tubule of the nephron. This results in hypervolemia and part of this increased fluid readily finds its way into interstitial tissues through damaged capillaries.

The Oedema found in the severe forms of toxemia of pregnancy is probably similar[8] to that noted in acute glomerulonephritis. In this disease there is marked spasm of the arterioles which can be seen on fundoscopic examination of patients with this disease. This spasm in turn is thought to cause capillary stasis and hypoxia, which results in altered permeability and damage to the capillary wall. In the kidney the spasm in the arterioles, together with swollen damaged capillaries in the glomerulus, will cause a decrease in glomerular filtration rate. Meanwhile the tubules will continue to reabsorb sodium and water at the usual rate. The extra salt and water which is, therefore, retained will readily enter the interstitium throughout the body through the hypoxic damaged capillaries.

Figure I illustrates the basic features postulated to be the cause of the Oedema noted in the nephrotic syndrome. Increased permeability in the glomerulus permits the filtration of excess amounts of albumin[9] which is lost in the urine and results in hypoalbuminemia. Radioactively tagged albumin studies have confirmed that the albumin found in the urine comes from the plasma. The lowered intravascular osmotic pressure which results from the lower albumin in the plasma permits an escape of fluid into the tissues. The decreased plasma volume in turn is thought to result in stimulation of the release of aldosterone. Increased levels of aldosterone in the nephrotic syndrome have been noted by several investigators and this increase will cause an increased reabsorption of salt by the renal tubules. The hyperosmolarity which results leads to a release of antidiuretic hormone. This sequence of circumstances eventually leads to Oedema.

In chronic renal failure, Oedema may be noted in the terminal stages. This Oedema is primarily due to congestive heart failure. There are several factors involved which may perpetuate or aggravate this feature of chronic renal disease. Hypertension is noted in many cases and produces increased work for the myocardium. The proteinuria and anemia present will decrease the intravascular osmotic pressure.

In summary a brief outline of the structure and some aspects of the physiology of the kidney have been discussed. The Oedema of acute glomerulonephritis and toxemia of pregnancy are produced as a result of reduced glomerular filtration rate and glomerulo-tubular imbalance as well as a capillary basement membrane defect. Patients with nephrotic syndrome manifest Oedema because of hypoproteinemia and elevated levels of antidiuretic hormone and aldosterone which cause a retention of salt and water. Finally the major factor in the Oedema of chronic renal disease is thought to be hypertensive cardiovascular disease with congestive heart failure aggravated by anemia and hypoproteinemia.


OEDEMA OF NEPHROTIC SYNDROME
Primary Causes (Unknown)
Glomerular Changes
Decreased Filtering Surface
Increased Porosity
Proteinuria
Increasd Net Transfer of Plasma to Interstitial Tissues
Decreased Blood Volume
Increased Aldosterone and A.D.H.
Decreased G.F.R.
Tubular Preponderance
Increased Na, Cl, H2O Reabsorption.
Diminished Diuresis
OEDEMA

(Fig. I)

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CLINICAL AND CARDIODYNAMIC EFFECTS OF ADRENOCORTICAL STEROIDS IN CONGESTIVE HEART FAILURE. Greene, M. A., Gordon, A., and Boltax, A. J., Circularion. 21: 661, (May) 1960.

This study is concerned with the effects of adrenocortical steroids in patients with congestive heart failure.

Nine adults with heart failure were studied during a steady clinical state (5 to 7 days), during administration for 13 to 16 days of prednisone or triamcinolone, and in some subjects following steroid withdrawal. Daily determinations of fluid balances were performed. Standard right heart catheterization and measurements of blood volumes were performed prior to and at the termination of therapy.

Three types of responses to steroids occurred. In patients there were increases in the subjective and objective manifestations of heart failure and there was increased fluid retention. In 4 of them the clinical condition worsened during steroid therapy, requiring mercurial diuretics. In general, cardiodynamic status at the termination of steroid therapy correlated well with clinical status. In 3 patients the clinical status did not change and the cardiodynamics were generally unaltered. In 1 patient clinical and cardiodynamic state improved, despite positive fluid balance. However, this was the only subject with primary lung disease and cor pulmonale.

These studies suggest that corticosteroids are generally detrimental in uncomplicated congestive heart failure.

S.J.S.

A COMPARISON OF THE HEAF AND MANTOUX TUBERCULIN TESTS

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The Heaf test has been urged by many in recent years as a substitute for and an improvement on the intradermal tuberculin (Mantoux) test. The Heaf test is said to have the advantages of ease of administration, freedom from the necessity to prepare and sterilize needles and syringes and the fact that the test in this form is more "sensitive" than the standard (10 tuberculin unit) Mantoux test. The opponents of the Heaf test say that it is impossible to standarize because the amount of tuberculin (the tuberculin unit content) introduced by the Heaf device is unknown, that flaming the needles of the device does not necessarily sterilize them and that the increased "sensitivity" of a Heaf test is merely an increase in "false positives." (Ed.'s Note).

The multiple puncture tuberculin test as described by Heaf[1] has been widely used since it was first introduced in 1951. In Nova Scotia, the test was first used on a community basis in October 1958 for a preliminary survey of the residents of Kings County. Since then the test has been used more extensively throughout the province. The Heaf test has been compared with the Mantoux test by several observers in different countries including Low[2] and Cheung[3] in Canada. This paper presents a comparison of the two tests when used simultaneously in the tuberculin testing of student nurses affiliating at the Nova Scotia Sanatorium.

Materials and Methods

The Heaf multiple puncture test was done as described by Heaf[1] with minor modifications. The Heaf apparatus (Allen & Hanburys, Ltd.) was used, but the six needles were always set to penetrate the skin to a depth of 1 mm., the 2 mm. setting not being used at all. The PPD for use with this test was in the form of Protoderm (2 mgm.PPD/ml.) as supplied by Messrs. Allen & Hansburys. The Protoderm was applied to the skin with a glass rod which was flamed in alcohol before use. The skin was then punctured through the Protoderm with the six needles of the Heaf apparatus, which was also flamed in alcohol before use. Interpretation of the test was as described by Heaf, positivity being graded into four degrees:

Grade I: Isolated induration of at least 4 puncture sites.
Grade II: Coalescence of induration to form an indurated ring.
Grade III: An indurated plaque of 5-10 mm. diameter.
Grade IV: Any more serious reaction such as blistering or necrosis.

The Heaf test was always done on the upper part of the anterior aspect of the right forearm.

The Mantoux test was always done on the anterior aspect of the left forearm, using commercially available PPD in two strengths; intermediate and second. The two doses of PPD given had strengths corresponding to 10 TU and 250 TU, the 10 TU being given in the upper part of the forearm and the 250 TU in the lower part of the forearm. The Mantoux test was not regarded as positive unless the mean diameter of induration was 7 mm. or more.

On the occasion of the first visit, the Heaf test and the 10 TU Mantoux test were done and these were interpreted at the second visit 3 days later. If the 10 TU test was negative, the 250 TU test was given. This latter was interpreted 3 days later at the third visit when the Heaf test was also re-examined, i.e., 6 days after it had been done.

A 10 TU strength Mantoux test was used rather than the currently favoured 5 TU strength as most of the nurses were also included in a survey being conducted by Drs. C. B. Stewart and C. J. W. Beckwith in Halifax. These authors found that the 10 TU Mantoux test served their purposes best in determining indications for BCG vaccination among student nurses. Nor were there any serious reactions in a group of some 60,000 tests on student nurses although there were several severe reactions when the 10 TU Mantoux test was used in series of 400 tests in an older age group.

This study comprises 247 series of tests done on 219 nurses. 28 nurses were retested some 5-6 weeks following BCG vaccination at the Sanatorium. Nearly all the nurses were aged 19, 20 or 21. All except one nurse were female. 167 nurses had been vaccinated with BCG on one or more occasions before coming to the Sanatorium. All the tests were done and interpreted by the author, thus eliminating observer variations.

Results

The results of the 247 series of tests are listed in Table I. (As a matter of interest, the results of a series of 207 tests done on 184 new employees of the Sanatorium are presented in Table II. A 5 TU strength PPD was used for the first Mantoux test in this series, so the results are not compared. 46 of these tests were done following BCG vaccination).

In all, there were 78 student nurses who had positive reactions to the 10 TU Mantoux test and the Heaf test. Comparisons of the degrees of reaction are presented in Table III.

167 student nurses had had BCG vaccinations before coming to the Sanatorium and their results are presented in Table IV. 54 of the nurses had positive reactions to the 10 TU Mantoux test and the Heaf test. These reactions are compared in Table V. The degree of reaction to the Heaf test in this group of 54 nurses is analysed in relation to the time since their most recent BCG vaccination in Table VI. There were 49 of the 167 nurses who had no reaction to the 10 TU Mantoux test but did react to the Heaf test and the 250 TU Mantoux test. It was not possible to compare the reactions of these two tests as the 250 TU test was not done with the same degree of accuracy. If the 10 TU Mantoux test was negative but the Heaf test was positive on the third day, a smaller dose of the second strength PPD was given; approximately 0.05 cc. or 125 TU. This always confirmed the positive reaction but did not give the severe reaction that might have resulted had the full dose been given. The relationship of the degree of reaction of these 49 Heaf tests to the time interval since the most recent BCG vaccination is shown in Table VII.

Discussion

Several studies comparing the Heaf test with the Mantoux test have stressed the relative simplicity of preparation for the Heaf test and the test in performing the test. This is especially true when the test is used for epidemiological surveys. Low[2] states that the preparatory work required for a

TABLE I

Tuberculin reactions of 247 tests on 219 student nurses

	HEAF		
MANTOUX	Positive	Negative	TOTAL
Pos. 10 TU	77	0	77
Neg. 10 TU	63	40	103
Neg. 250 TU	0	67	67
TOTAL	140	107	247

TABLE II

Tuberculin reactions of 207 tests on 184 new employees

	HEAF		
MANTOUX	Positive	Negative	TOTAL
Pos. 5 TU	53	0	53
Neg. 5 TU Pos. 250 TU	29	20	49
Neg. 250 TU	0	105	105
TOTAL	82	125	207

TABLE III

Comparison of 77 positive reactions to 10 TU
Mantoux and Heaf Tests

	MANTOUX - Mm. of induration					
HEAF	7-9mm	10-14mm	15-19mm	20-24mm	25-29mm	TOTAL
1	19	15	5	0	0	39
11	3	11	8	5	0	27
111	0	3	3	3	2	11
TOTAL	22	29	16	8	2	77

TABLE IV

Tuberculin reactions of 167 student nurses previously vaccinated with BCG

MANTOUX	HEAF		TOTAL
	Positive	Negative	
Pos. 10 TU	54	0	54
Neg. 10 TU Pos. 250 TU	49	38	87
Neg. 250 TU	0	26	26
TOTAL	103	64	167

TABLE V

Comparison of 54 positive reactions to 10 TU Mantoux and Heaf tests on nurses previously vaccinated with BCG

HEAF	MANTOUX - Mm. of induration					TOTAL
	7-9mm	10-14mm	15-19mm	20-24mm	25-29mm	
1	11	8	5	0	0	24
11	1	11	6	5	0	23
111	0	1	2	3	1	7
TOTAL	12	20	13	8	1	54

TABLE VI

Relationship of Heaf test to time interval since most recent BCG vaccination in 54 nurses who also reacted to 10 TU Mantoux

HEAF	Most recent BCG vaccination						TOTAL
	1 yr.	2 yrs.	3 yrs.	4 yrs.	5 yrs.	6 yrs.	
1	11	10	3	1	0	0	24
11	5	12	1	2	1	1	22
111	4	1	0	0	2	0	7
TOTAL	20	25	4	3	3	1	54

TABLE VII

Relationship of Heaf to time interval since most recent BCG vaccination in 49 nurses who were negative to 10 TU Mantoux but positive to 250 TU Mantoux

HEAF	Most recent BCG vaccination						TOTAL
	1 yr.	2 yrs.	3 yrs.	4 yrs.	5 yrs.	5 yrs.	
1	21	16	6	1	2	1	47
11	0	2	0	0	0	0	2
TOTAL	21	18	6	1	2	1	49

Heaf test survey is insignificant compared with the work required for a survey using the Mantoux test.

Probably the most comprehensive report published on the comparison of the Heaf test and the Mantoux test is that published by the Tuberculin Sub-Committee of the British Tuberculosis Association[5] to which the reader is referred. In a report of 3,619 readings, there were 45.2% that were positive to both Mantoux (5 TU Old Tuberculin) and Heaf tests, reading the Mantoux test on the third day and the Heaf test on the seventh day. In addition, there were 32.8% that were positive to the Heaf test only, whereas there were only 0.3% that were positive to the Mantoux test only.

Low[2] tested 420 subjects who had previously been vaccinated with BCG and 620 unvaccinated subjects. He compared the results of a 10 TU Mantoux test (Old Tuberculin) with the Heaf test. In the vaccinated group, there were 15% more positive reactors to the Heaf test. In the unvaccinated group, there were 8% more positive reactors to the Heaf test.

In a series of tests on sanatorium patients reported by Cheung[3], there were 93.5% who reacted to 5 TU Old Tuberculin and 94.25% who reacted to the Heaf test.

There are insufficient numbers in this present series to allow of any definite conclusions, but the results do confirm the general trend of findings in larger series. Of the 247 tests, there were 77 or approximately 31% who had a positive reaction to 10 TU but there were 140 or approximately 57% who were positive to the Heaf test. 180 or approximately 74% had a positive reaction to 250 TU and 10 TU. Of the 167 nurses who had previously been vaccinated with BCG there were 54 or approximately 32% who reacted to 10 TU whereas 103 or approximately 62% reacted to the Heaf test. 141 or approximately 84% were positive to 250 TU and 10 TU. The results presented stress the advantage of using the Heaf Test in determining the tuberculin sensitivity of relatively weakly positive reactors. Obviously, if all the nurses had initially been tested with 250 TU there would have been some severe reactions. As it was, there were no severe reactions to the Heaf Test in the group which had previously been vaccinated with BCG. There were 52 nurses who had not previously had a Mantoux test, and 14 of these had a positive Heaf reaction but none greater than Grade III. There were, however, 16 nurses who are not included in this study since they were known to have had a severe reaction previously to either a Patch Test or a Mantoux Test. Sensitivity to tuberculin was confirmed in these 16 nurses by using a Mantoux test of 1 TU strength.

The Tuberculin Sub-Committee of the British Tuberculosis Association[5] felt they had most confidence in their seventh day readings of the Heaf test. The observers also show that interpretations of the Heaf Test on the 7th day most closely correspond with the results obtained by using two Mantoux Tests of 5 and 100 TU strengths. The interpretation of the weakly positive Heaf Test in this present series was not always definite on the 3rd day, but could sometimes be interpreted on the 6th day. Of the 167 nurses who had previously been vaccinated with BCG there were 49 who had a negative reaction 10 TU but had a positive reaction to the Heaf test and the 250 TU Mantoux Test. On the 3rd day, only 30 showed a positive reaction to the Heaf Test (28 Grade I and 2 Grade II) but on the 6th day there were 48 positive reactors (47 Grade I and 1 Grade II). One nurse had a delayed reaction to the Heaf Test which did not show positive until 13 days after

the test had been done. The interpretation of the test on the 7th day is of obvious benefit for any group using the Heaf test at a clinic held once a week.

Several authors have mentioned the advantage of the Heaf test insofar as administration and reading are concerned. Carpenter and Stewart[6] have shown that the size of the Heaf reaction may depend on the amount of pressure applied by the tester. They have described a trial using a self-firing Heaf apparatus which may make the test even more independent of individual variations.

Summary

For those who have used the Heaf test, there is no question as to its advantages in simplicity of preparation for the test, and ease of performance of the test. Several authors have also confirmed the easier interpretation of the Heaf test reaction. It has also been shown that the test is more reliable for any tuberculin survey using only one test and results compare favourably to the results of surveys using two tests of different strengths.

This paper compares the results of the Heaf test and two strengths of Mantoux tests done 247 times on 219 student nurses. The value of the Heaf test in demonstrating tuberculin sensitivity in weakly sensitive individuals is also emphasized.

The writer is indebted to Dr. J. E. Hiltz, Superintendent of the Nova Scotia Sanatorium, for encouragement with this programme, and to Dr. C. J. W. Beckwith, Associate Professor of Preventive Medicine, Dalhousie University, for criticism of this paper.

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Situayion Wanted

Graduate with resident training requires position as locum tenens anywhere in Nova Scotia from January 1, 1961, to March 15, 1961, or any part of this period.

Write—Locum c/o Executive Secretary, The Medical Society of Nova Scotia, Dalhousie Public Health Clinic, University Avenue, Halifax, N. S.

ANTIBIOTICS IN FIXED COMBINATION

The following editorial deserves the earnest attention of every physician. It is estimated that less than 10 per cent of the antibiotics used in the United States each year are prescribed with adequate clinical indications. The Bulletin is grateful to Dr. Joseph Garland, Editor of The New England Journal of Medicine, for permission to reprint this valuable editorial that highlights a particularly pernicious form of the current abuse of antibiotics. (The italics are mine). The Editor.

There appears to be a growing awareness among physicians and the intelligent lay public of some of the problems resulting from the widespread and indiscriminate use of antibiotics. This applies particularly to the increasing prevalence and seriousness of infections caused by antibiotic-resistant strains of previously susceptible bacteria (notably staphylococci) and by bacterial species (such as those of aerobacter, proteus and pseudomonas) resistant to the widely used antibacterial agents. Unfortunately, the critical role that the introduction, promotion and extensive use of the fixed combinations of antibiotics may have had in bringing about the present state of affairs seems still to be little realized by the medical profession, which, because of its continuing prescription of these combinations, must take the ultimate responsibility and blame.

The worst of the antibiotic combinations is the mixture of penicillin and streptomycin, employed by many physicians to treat even such simple penicillin-susceptible infections as streptococcal pharyngitis, gonorrhea and pneumococcal pneumonia (for which the streptomycin is almost always redundant). Unfortunately, it is also used for the prophylaxis of nearly all infections, which it rarely prevents, more often contributing to the occurrence and increased severity of antibiotic-resistant infections as well as giving rise to unnecessary and often serious toxic effects. Part of the curse was removed when dihydrostreptomycin was recently prohibited from inclusion in this combination, but streptomycin still holds its place, and the new combination apparently is still being as widely employed as before this change was made.

Because of the proprietary interests in other antibiotics, particularly some with limited activity or other undesirable properties, a number of manufacturers began the production and promotion of combinations containing their own products. The one that was most vigourously and intensively advertised and promoted is the combinationof tetracycline and oleandomycin.* It was this combination that was supposed to epitomize the "New Antibiotic Era" or the "Third Antibiotic Era" (the second being that of the broad-spectrum antibiotics). Apparently, the promotion of this product was much more successful than the attempts of a number of authorities in the field to point out its defects through scientific reports and editorials in leading medical journals. Possibly as a result of this sales success, a large number of new combinations of other antibiotics or mixtures of antibiotics with various sulfonamides and with other drugs having pharmacologic properties have been introduced. The advertising and detailing of these mixtures have been directed toward promoting their use both in hospitals as initial therapy before an etiologic diagnosis is reached and to practicing physicians for use in mild or poorly defined cases, in which diagnosis may be difficult and in which bacteriologic confirmation seems not worth bothering about or is impossible

*First introduced as Sigmamycin, subsequently called Signemycin and then Cosa-Signemycin as its composition was changed to include the improved triacetyloleandomycin with glucosamine as an added lure.

to obtain. Disks containing their particular combinations have also been distributed to laboratories by various manufacturers, and the results of their use have been interpreted as though they had virtues not possessed by the disks containing the individual constituents.

All the fixed combinations currently available have the following serious objections, real or potential:

They encourage "shotgun therapy," which discourages the study and observation of the patient.

They fail to provide optimum treatment in the relative amounts contained in the commercial "fixed" combination for any single known disease.

They contain constituents of which at least one has the tendency to give rise rapidly to increased resistance, particularly of staphylococci, and organisms resistant to one or the other, or both, are already prevalent wherever these agents are popularized or antibiotics in general are widely used.

They occasion an increase in occurrence and spread, and probably also potentiate the virulence of certain organisms that are usually saprophytic.

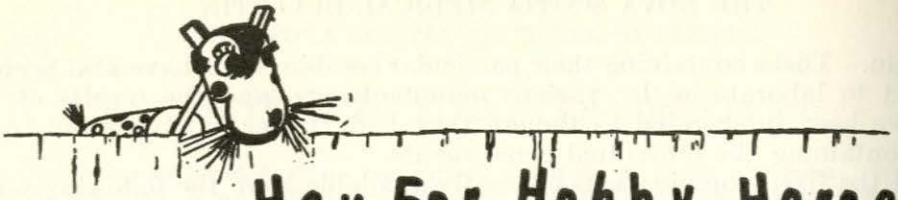
One or the other constituent may be particularly useful in certain serious specific infections and should best be reserved for use in circumstances in which it may be specifically indicated, but this advantage is generally lost when that agent is used widely and promiscuously, as in these mixtures. Moreover, if one or the other constituent is especially indicated in a given condition, it is impossible to adjust the dose of the useful one to provide optimum therapy without increasing that of the other.

Since none of the combinations have clearly shown any therapeutic advantage in patients, over the proper use of the more effective component alone, the patient is unnecessarily placed in "double jeopardy" of toxic reactions and acquiring sensitization to both agents.

Studies of several antibiotic combinations that share the above objectionable features have already been published in the *Journal* at various times over the past few months, and in this issue data are presented by Hirsch and Finland concerning another of these combinations that does not seem to offer any advantage over its individual constituents.

It is discouraging and disquieting that, in spite of repeated expositions of the defects of the fixed combinations and the potential or actual dangers of their application, they are still being prescribed in sufficient quantity, both here and abroad, to encourage the manufacturers in continuing their production and in promoting their use. *It cannot be too strongly emphasized that the best interest of the individual patient is served and the least harm done when antibiotics are prescribed, each in its optimum dosage and only for infections in which it is specifically indicated.* Their possible curative and lifesaving properties will also best be preserved for other patients if they are always used only in this manner.

Reprinted from New Engl. J. Med. Feb. 4. 1960, p.255.



Hay For Hobby Horses

The Brand Name - Bane or Benefit

As in "The Encircled Physician" (July), this column addresses itself again to the uneasy relationship that exists between the medical profession and the drug industry. In the past eighteen months there has been an increasing outcry in the public press, set in motion by alleged high profits in the drug industry, for an investigation of, and presumably some control over, the manufacture of drugs. It has been urged in both lay and medical press that an avoidance of "brand names" for drugs and the rigid adherence to the use of generic names in prescribing would cut the nation's drug bill by a substantial amount. It was recently reported that the State of California cut drug costs of its welfare out-patients by 70% during the last half of 1959 (as compared to 1958) by using generic names instead of trade names in the prescription of drugs.

This is a complex issue and all a general physician, of limited knowledge and understanding, can do is raise a number of questions for consideration. The actual cost of drugs to the consumer is an object of secondary importance to the physician if, indeed, it is the concern of the physician at all. A fair retail price for a drug that has cost a million dollars to develop would tax the skills of an experienced cost accountant to establish.

Trade names are copyrighted terms selected by manufacturers to designate their particular products and serve as important symbols in establishing the drug in the minds of the physician and the public. Do they serve the physician well or ill? There is no doubt that it is valuable to identify a product in relation to its manufacturer. We attribute to the product those qualities associated with the manufacturer, in terms of our individual experience. So far, so good. An important peculiarity of brand names in the drug industry has recently been pointed out by Garb.[1] "In areas of commerce other than pharmaceuticals, the brand name usually indicates a manufacturer, i.e., Quaker Oats, Campbell's soups, etc. In the pharmaceutical field, however, *the so-called brand name is really a new name for the product rather than an identification of the manufacturer*, i.e., Pacatal, Mobenol, Diamox, Neo-Cortef, etc. None of these names gives much of a clue as to the composition of the product or to the source of manufacture. Visualize the confusion which would result in a grocery store if drug companies took over the selling of beans. Each manufacturer would devise his own private name for beans, perhaps some anagram like "Sneab" or "Nabes" or something suggesting a particular use like "Lo-Cals" or "Hi-Pros." The practice of marketing under brand names has burdened the doctor with a senseless jargon, in the realm of therapeutics, which makes learning, prescribing and supply needlessly complex.

This practice of applying "private-product names" to drugs during their manufacture has led to an important, and hitherto ignored, dichotomy in the teaching of pharmacology and therapeutics. The practice in most departments of pharmacology is to teach the subject through the use of generic

names. Departments of medicine follow suit but are fighting a desperate rear-guard action in an attempt to persuade senior medical students and house-staff to abstain from brand name jargon. Once outside the confines of the teaching hospital and the medical school the attempt to identify drugs by generic names is almost abandoned.

The practicing physician may well take the attitude that this is another of these ivory-tower arguments that are popular in teaching centers and has no pertinence in clinical practice. The physician wants primarily two things. First, a convenient label that will be short, simple in spelling and suggest the product that it represents, i.e., insulin. Secondly, a reliable product that is potent in the pharmacologic sense and "safe," with side-effects infrequent, predictable and *clearly* identified by the manufacturer. If the maker is reliable, the physician feels that a reasonable additional cost is not too much to pay for the feeling of security that comes with the knowledge that a reputable manufacturer stands behind the agent used in the patient's care. In this respect Garb[1] recently reported a study in which medical students evaluated the reliability of drug advertising claims by comparing the information supplied by companies to that given in references provided by the faculty. In the evaluation of the advertising claims of twenty-six companies, students rated eleven as reliable. Garb comments that this is a very hopeful finding since these eleven firms account for a substantial portion of all drug sales.

Until recent years, the Council of Pharmacy and Chemistry of the A.M.A. has supported the use of generic terms. However, in 1956, the A.M.A. Council of Pharmacy and Chemistry radically revised its rules, closed its laboratory for the testing of drugs, completely changed its method of accepting drugs for inclusion in New and Non-Official Remedies, dropped the seal of approval and no longer emphasized the importance of generic terms.

The change did not go unnoticed. "The Council on Drugs of the A.M.A began a downward path some years ago when they abandoned all evaluation of therapy and dropped the seal of acceptance program. The Council has caused most of the present abuses of generic terminology by voluntarily adopting the policy that *generic terms must be originated by and acceptable to the sponsoring drug company.* This, then, puts generic terminology in the hands of the very people who have the most to gain by avoiding the use of generic terms. A company could achieve this goal by developing unusable names and the simplest way to do this is by subscribing to the fetish that generic names should be based on chemical names (which is completely valueless to everyone, including chemists). Thus, in recent years new drugs have invariably had ridiculous names in place of such arbitrary, but perfectly, usable old generic names as insulin, morphine, digitoxin and the like. At any rate the problem will soon be more complicated. It has recently been announced that the Council will (in the summer of 1960) cease all activities connected with the assigning of generic names. There will then be a complete void for, to my knowledge, there is no agency with the facilities and the will to assume this job."[2]

The Sub-Committee on Generic Terms of the Los Angeles County medical Association has made recommendations that meet the situation in the U.S. They are reproduced in full for your consideration.

1. That medical associations encourage physicians to prescribe by using generic (official) terms.

2. That the Council on Drugs of the A.M.A. shall devise and make official a generic name for all drugs to be included in New and Non-Official Drugs or to be submitted for advertising in the various publications of the A.M.A. and that said Council of the A.M.A. shall have full and sole responsibility for devising such generic names.

3. It is the recommendation of the Council of the LACMA that official drug names should be in the simplest possible form, should consist of not more than three or four syllables and not attempt to cover the chemical description of the compounds named. Insulin, morphine and digitoxin are samples of useful "official" names.

4. It is urged that the A.M.A. and its constituent state societies encourage the testing of drugs by appropriate federal and state authorities for the purpose of insuring the potency and purity of drugs.

Further evidence of the response of the profession to this problem is reflected in a report prepared by the Committee on Advertising of the New England Journal of Medicine.[3] An editorial appearing in the same issue entitled "On The Promotion of Drugs" makes the following comment. "The whole absurd situation. . . . . every marketable drug has at least three names—a chemical name based on its technical composition, a generic or popular name selected by the original producer in collaboration with the Federal Food and Drug Administration and the Council of Drugs of the A.M.A. and as many copyrighted names as there are manufacturers entitled to produce it. These names may have no shred of meaning in so far as any descriptive application to the drug is concerned; they are merely proprietary labels that a manufacturer hopes will linger in the memory of the prescribing physician if their introduction is accompanied by a publicity campaign of sufficient voltage."

This problem has greater dimensions for the C.M.A. and its provincial divisions than it has for the A.M.A. *because of the limited resources for evaluation of new drugs possessed by the Federal Food and Drug Division in Canada.* These and other facets of this problem are clearly set forth in the Report of the Committee on Pharmacy of the C.M.A. for 1960. Section 142 of this report is as follows:

"The general situation with regard to drugs should be a matter of concern to this Association. New drugs are being introduced at a rate of more than one hundred per annum, and new combinations of drugs are bing marketed in a way which creates confusion. Some of the new compounds represent real advances in therapeutics, while other have very little advantage over the older agents which they supplant so rapidly. When new agents are introduced at this rate there is no opportunity for sober evaluation of their merits or publication of the results of such studies before they are widely advertised to the profession. Nonetheless, the sale of most of these drugs is directly due to the fact that they are prescribed by doctors. Your Committee feels that there are two aspects to this problem. The first requires that the individual physician consider carefully the evidence upon which the claims for new drugs are based, and the actual advantage (or disadvantage) likely to be enjoyed by the patient for whom he contemplates prescribing them. The second has to do with the provision of greater facilities for clinical trials of new drugs and their publication by institutions capable of doing the work properly, possibly with the support of a pooled fund to which the pharmaceutical manufacturers would be willing to contribute."

The Medical Society of Nova Scotia has recently established a pharmacy committee through which this Division will have access to this important committee at the C.M.A. level. Individual physicians in this province have already discovered that government agencies are very sensitive to the cost of drugs and will, without consultation, substitute less reliable and, initially, less expensive products bought under the generic names from unidentifiable sources. Unless we have an absolute guarantee of adequate testing of all drugs by an independent agency before they appear on the market, we must accept the additional expense associated with drug marketing under the

device of brand names. However, even if we continue to prescribe under brand names, for the security it affords, we should insist on having control of the naming of drugs for our own convenience and protection.

Generically yours, I sign with my brand name,

BROTHER TIMOTHY.

REFERENCES

1. Garb, S. Teaching Medical Students to Evaluate Drug Advertising. J. Med. Educ. 35: 729-39, 1960.
2. Ferguson, F. C., Jr. quoted by Mauer, E. F. Saturday Review August 6, 1960, p. 46.
3. Drug Terminology and the Urgent Need for Reform. Special Article. New Eng. J. Med. 263: 21-23, 1960.

PROGNOSIS IN SUBARACHNOID HEMORRHAGE. Pollack, S. I., and Paddison, R. M., Ann. Int. Med. **52**: 1088, (May) 1960.

The results of a study of 134 patients with subarachnoid hemorrhage are presented in this paper. The greatest number of fatalities occurred within the first 24 hours of hospitalization. The death rate fell rapidly after the first week of hospitalization. Coma, or even an altered sensorium of lesser degree had an unfavorable effect on the outcome. A large number of patients in this study had elevated blood pressures, and this also had an unfavorable effect on the prognosis. Advancing age did not seem to influence the prognosis. It appears that the patients who die in the first day or two are so desperately ill that little could be done to improve the situation during this period.

The primary objective of surgery is the prevention of recurrent bleeding, and its risks must be weighed against those of recurrent hemorrhage. It is the feeling of the authors that surgical intervention in properly selected cases is life-saving.

S.J.S.

ENVIRONMENTAL FACTORS IN CORONARY HEART DISEASE. AN EPIDEMIOLOGIC STUDY AT AGRA (INDIA). Mathur, K. S., Circulation. **21**: 684, (May) 1960.

Various factors relating to coronary heart disease were investigated in 2 groups of patients: 553 patients with clinical coronary heart disease and 1,056 persons selected in a field survey of the general population of Agra, India.

The incidence of coronary disease was higher in the urban population, in the upper socioeconomic classes, and in persons with highest amounts of total dietary fat and highest percentage of calories from dietary fat. Total serum cholesterol, serum phospholipid, and cholesterol/phospholipid ratio were higher in the coronary group.

Finally, it seemed that physical activity was less and emotional stress and strain greater in the patients with coronary disease.

No relation between coronary disease and smoking or alcohol was established.

S.J.S.

PERSONAL INTEREST NOTES

Cape Breton Medical Society

Dr. Malcolm Macaulay and Dr. M. J. DeKovan, medical officers, Federal Department of Immigration, have been transferred recently to other centers. Dr. Macaulay, a native of Sydney, in practice for several years, moved to Halifax the end of July and Dr. DeKovan was transferred to Winnipeg. These medical men were honored by the members of the medical staffs of the City and St. Rita Hospitals, prior to their departure, and were the recipients of suitable presentations.

Dr. and Mrs. Joseph Kereczsturi returned from a vacation spent in Europe travelling by car through Spain, and during his absence Dr. Osveigy, Senior Resident in Radiology, Victoria General Hospital, Halifax, carried on relief duties at St. Elizabeth Hospital, North Sydney and St. Joseph's Hospital, Glace Bay.

The annual meeting of the Cape Breton Medical Society was held on June 2, 1960 at the Sydney City Hospital. Dr. J. O. MacNeil, Glace Bay, was elected president for 1960-61, Dr. T. J. McKeough, Sydney Mines, Vice President; Dr. H. R. Corbett, Secretary, Dr. N. K. MacLennan, Treasurer. The Secretary and the Treasurer were reelected to their respective offices.

Dr. and Mrs. H. R. Corbett attended the C.M.A. meeting in Banff, Alberta in June.

Results from the Provincial election in June: Dr. T. J. McKeough, Sydney Mines was elected representative for the Conservative party in Cape Breton North and Dr. C. L. MacMillan of Baddeck was returned as the Liberal member from Victoria County.

Cumberland Medical Society

Dr. and Mrs. W. M. Grant have given up practice in Amherst, having gone to Beth Israel Hospital, Boston for three years post-graduate study in obstetrics and gynaecology. A send-off party at Dr. David Drury's cottage at Tidnish was attended by the medical and nursing staffs of Highland View Hospital, Amherst.

Dr. D. R. Davies, Oxford, was recently holidaying in Syria, Israel, and Wales.

Halifax Medical Society

The special committee made up at the May 8, 1960 joint meeting of the Halifax Medical Society, Halifax-Dartmouth General Practitioners Association, and some members of the Victoria General Hospital Staff, and Dalhousie University Medical Faculty, consisting of: Drs. B. K. Coady, J. McD. Corston, R. C. Dickson, R. M. MacDonald, J. W. Merritt, and D. I. Rice, have recently been having meetings with the provincial and civic governments in an attempt to provide an adequate number of additional beds at the Victoria General Hospital. The planned enlargement to 853 bed accommodation, should be raised to 1000 beds. The Province has refused to plan for more beds than are now envisioned for the Victoria General Hospital's proposed addition. The Province also pointed out that other areas provided their own hospital plant and suggested that Halifax City do the same. The reaction of Mayor Vaughan of Halifax, was that he personally felt the City should not become involved in Hospital construction. "The City is already making substantial contributions to area hospitals: Grace Maternity, Child-

ren's, and we have been asked for and are planning a further contribution to the Halifax Infirmary." The Mayor added he felt the City should be guided to a great extent by the Provincial Government's statement to the City regarding hospital services and Halifax had had no request from the province to financially assist in providing hospital space in addition to the Victoria General. "This Hospital Insurance Act we've got should take care of all hospital construction."

The Committee, was advised by an architect that the cheapest, most economical method of increasing the number of beds to make a total of 1000 would be to add two more floors as the addition is being built. To have separate institutions for the extra beds would cost some three times as much. Statistics submitted by Dr. Rice showing the number of patients admitted to the Victoria General Hospital during 1958-1959:

	1958	1959
Halifax	4393	4741
Dartmouth	788	927
Halifax County	3183	3312
Nova Scotia	5296	5534
Other provinces	281	217
USA	21	18
Others	15	5
TOTALS	13,977	14,754

In 1952-53, with the same number of available beds, the Victoria General handled a total of 12,041 patients.

Western Nova Scotia Medical Society

Dr. George V. Burton and family of Yarmouth have taken up residence in Montreal where Dr. Burton is doing post-grad work in obstetrics and gynaecology. A farewell dinner was given by his colleagues at Braemar Lodge, at which a suitable presentation was made.

Dr. Donald Milford, a recent Dalhousie Graduate, has taken over Dr. Burton's practice.

Service Medical Group

July 13, 1960—Surgeon Captain Frederick George Wallace MacHattie, Goderich, Ont., has taken up the appointment of Principal Medical Officer of the Canadian Forces Hospital at Halifax.

University

August 1, 1960—Dr. Virender Kumar Saini, has been appointed Assistant Professor of Anatomy at Dalhousie Medical School. Dr. Saini received his liceniate of the State Medical Faculty from the University of Punjab, India. September, 1949. Following a two year course, he received his M.B. Ch.B degree in 1954 from the University of Calcutta. Dr. Saini has also had more than 6 years teaching experience in Indian Medical Colleges. For the past two years he has been studying in the United States.

Births

To Dr. and Mrs. Norbert Kerenyi (nee Eva Gyenes) a daughter, Halifax Infirmary, Aug. 17, 1960, a sister for Agnes and Gabriel.

To Dr. and Mrs. Malcolm Macaulay (Rosemary Lane) a son, Grace Maternity Hospital, Halifax, on July 17, 1960.

Dr. and Mrs. Malcolm Stephen (Joan Crowell, R.T.), a daughter, Moncton City Hospital, on August 8, 1960.

Dr. and Mrs. W. G. Tucker, a son, David Herbert, Grace Maternity Hospital, July 23, 1960.

Marriages

Dr. Garth Herbert Embree, a recent Dalhousie Medical School Graduate and now a post-graduate student at the Montreal Neurological Institute, recently married Miss Veronica Ruf, a post-graduate botany student at McGill University at All Saints Cathedral, Halifax.

Congratulations

To Dr. F. Murray Fraser, on the recent marriage of his son, Frederick Murray Fraser, LL.B. to Miss Anne Louise Archibald, on August 20, 1960.

To Dr. and Mrs. James F. Ross, Halifax on their new son, Andrew James.

To Dr. Charles M. Harlow, director of laboratories at Camp Hill Hospital, Halifax, on his D.Sc., honoris causa, from Acadia University on August 16, 1960.

Coming Meetings

October 10-14, 1960—46th Annual Meeting of the American College of Surgeons, San Francisco, California.

November 7, 1960—Annual Meeting of the Nova Scotia Society of Ophthalmology and Otolaryngology, Halifax.

November 7-10, 1960—34th Annual Dalhousie Refresher Course, Halifax, N. S. Guest speakers will include Dr. D. G. Cameron, Professor of Medicine, McGill University, Dr. R. M. Janes, Professor Emeritus of Surgery, University of Toronto, and Dr. F. B. Carter, Professor of Obstetrics and Gynaecology, Duke University. The John Stewart Memorial Lecturer; Dr. D. F. Cappell, Professor of Pathology, University of Glasgow, Scotland.

November 17-19, 1960—International Symposium on "The Extrapyramidal System and Neuroleptics"—Department of Psychiatry, University of Montreal, P. Q.

November 30-December 3, 1960—Joint Annual Meeting of the Canadian Heart Association and National Heart Foundation of Canada—Royal York Hotel, Toronto, Ontario.

LETTERS

To the Editor:

RE — V.O.N. NURSING SERVICES — NOVA SCOTIA

As the representative of The Medical Society of Nova Scotia to the Advisory Board of the V.O.N. (Canada) and also to the Advisory Board for Nova Scotia, may I have space in The Nova Scotia Medical Bulletin to initiate a discussion of V.O.N. activities: present and future.

Generally, we are aware of the present activities of the V.O.N. The Victorian Order of Nurses will call at the home of any sick person where there is a V.O.N. Branch. She works under the direction of the family physician and will visit daily, or less frequently depending on the needs of the patient and the physician's instructions.

There are eighteen V.O.N. branches in Nova Scotia located at Amherst, Bridgewater, Dartmouth, Digby, Halifax, Kentville, Liverpool, Lunenburg, North Sydney, New Glasgow, Stellarton, Pictou, Sydney, Truro, Windsor, Hantsport, Wolfville and Yarmouth.

Forty-four Registered Nurses are employed in the Province and several of the nurses have public health training. The National Office of the V.O.N. for Canada meets in conference with the staff, teaching them modern technique of rehabilitation nursing, problems presented in relation to the extension of hospital insurance plans, implications of the hospital referral system, and the ever changing methods of today's nursing procedures. It is because of such supervision that the V.O.N. maintains such high nursing standards.

At present the V.O.N. is involved in medical and surgical care in the home, convalescent care, care of the chronically ill and aged and care of mother and baby. She is also involved in special activities in the community, such as child health clinics & conferences, school health services, pre-natal classes and part-time industrial nursing. These activities render a valuable service to the public but the main concern of the V.O.N. is still bedside nursing care.

The V.O.N. will call at the home of any person regardless of race, color or creed upon the advice of the physician. No call is refused, whether or not the patient can pay for the visit. Those who can pay are expected to do so and adjustments can be made to suit the individual's budget.

In this progressive period of medical care should we not be giving considerable thought to the changes in utilization of home care nursing services which have been so well known in this province since 1898?

With the advent of hospital insurance (January 1959) came waiting lists, reduced patient stay in hospital, etc. The V.O.N. stands ready to take on some of the tasks which may be carried on in an increased home nursing program. An interesting program is being evolved whereby the Halifax branch of the V.O.N. and the Victoria General Hospital are making arrangements for a "referral system," whereby the V.O.N. nurses will make ward rounds with the hospital team and discuss with the doctor and the patient plans for nursing care after the patient returns home. How right Florence Nightingale was when nearly a hundred years ago she said—"It is a rule without exception, that no patient ought ever to stay a day longer in hospital than is absolutely necessary." This statement applies more than ever today, but with the available skilled nursing services of the V.O.N. many recognizable benefits can be seen in the future.

Because of some doubt, it should be made clear that V.O.N. nursing services are available to the chronically ill and aged on the same basis as other

fields of service, i.e., on advice of the physician whether the patient can or cannot pay for the nursing service. Because of the newer methods in the field of rehabilitation the V.O.N. nurse is able to help people help themselves, help them to return to some degree of usefulness and have a feeling of being wanted.

Nova Scotia lacks homes for the aged and chronically ill; and until the time comes when more homes are available the V.O.N., the hospitals, and the doctors must work together for better understanding of the psychological implications of illness of the aged in the homes.

In the field of care of mother and baby, the ancillary services of the V.O.N. could be used to a much larger extent. The V.O.N. maternity educational Service can and should supplement the pre-natal care given by the family physician. It is difficult to give an extensive maternity educational service without close co-operation with the family physician. Otherwise many expectant mothers are missed. Again with the infants, the V.O.N. nurse will make follow-up visits to the new baby for a period of six weeks after birth.

These and other facets of V.O.N. work can be developed. I would invite suggestions from The Medical Society of Nova Scotia for the expansion of this worthy service.

I am indebted to Mrs. Lucille M. Reid, President of the Victorian Order of Nurses of Nova Scotia for providing the extensive material on which I base this letter.

Yours sincerely,

J. J. STANTON, M.D.

The Radicles
Chester, N. S.
August 15, 1960.

The Editor,

Dear Sir:

May I pass on, to your readers of my generation, a pithy characterisation of an aristocratic lady that appears in one of C. P. Snow's excellent novels? This is the setting. Lady Muriel felt that her niece, now the wife of a chap in the Foreign Office named Houston Eggar, had married beneath herself. The husband had just been named to the New Year's Honours List. This exchange took place.

"Muriel", Mrs. Seymour cried excitedly, "did you see that Houston has got a C.B.E.?"

"No, Doris", said Lady Muriel with finality. "I never read as low in the list as that."

Superb. What?

Yours sincerely,

MAXWELLTON BRAES, M.B.

ACCIDENT AND SICKNESS CLAIM FORMS

A major source of difficulty to the medical profession has been the profusion of forms to be completed by the physician in the interests of patients for accident and sickness insurance claims. About three years ago the C.M.A. Committee on Economics was charged with the responsibility of co-operating with the insurance industry to effect a standardization of these forms.

These two committees have attained this goal of standardization, abbreviation and simplification to a degree that reflects close co-operation with a common purpose; even the thorny subject of "assignment" has been dealt with in a practical manner.

The final forms were approved at C.M.A. General Council, 1960. The forms, accompanied by explanation and instructions for their use, are to be distributed to all Canadian doctors by C.M.A. about the middle of September. They will become effective October 1st, 1960. Another remarkable accomplishment is that these forms have been accepted and will be used by insurance companies representing approximately 95% of the accident and sickness insurance sold in Canada.

It is confidently expected that the use of these forms will be beneficial to patients, physicians and the insurance industry.

C.J.W.B.

PULMONARY FUNCTION IN THE IMMEDIATE POSTOPERATIVE PERIOD. OBSERVATIONS OF VITAL CAPACITY, TIMED VITAL CAPACITY, AND MAXIMUM EXPIRATORY FLOW RATES IN TWO GROUPS OF THORACOTOMY PATIENTS AND A GROUP OF NONTHORACOTOMY PATIENTS FOR SEVEN POSTOPERATIVE DAYS. Smith, T., et al. J. Thor. & Card. Surg. 39:788, (June) 1960.

Observations of the day-to-day changes of vital capacity, oxygen saturation, timed vital capacity, and maximum expiratory flow rate in post-thoracotomy patients are presented in this paper, and compared with similar measurements made in a group of postoperative patients who had not had thoracotomy. Marked reduction in volume and expiratory flow rate was found with insignificant improvement in the first 3 postoperative days, during which blood oxygen saturation is lowest. During this 3-day period, clinical signs and narcotic demand suggest painful respiration which promotes hypoventilation. The addition of neurectomy to the surgical procedure did not alter significantly the immediate postoperative changes in vital capacity, timed vital capacity, or maximum expiratory flow rate, but slight benefit is suggested. Increased use of an active regimen, more liberal narcotics for pain control, and more frequent use of prolonged oxygen therapy seem warranted.

S.J.S.

FOR SALE

An electrocardiograph "Burdick E. K. II"—practically new and in excellent condition—$550.00.

A current set "Practice of Medicine" Tice-Sloan with the "International Medical Digest" from 1956—$65.00.

Apply to The Nova Scotia Medical Bulletin, Dalhousie Public Health Clinic, Halifax, N. S.

BOOK REVIEW

COMMUNICABLE AND INFECTIOUS DISEASES. Top, F. A., The C. V. Mosby Co., St. Louis, 812 pp. $20.00.

The author is Franklin H. Top, Professor and Head, Department of Hygiene and Preventive Medicine, State University of Iowa. This popular textbook on communicable diseases, first published in 1941, has been revised and rewritten. It is intended as a handy reference for all persons whose professional duties bring them in contact with patients suffering from communicable diseases. The present edition is the work of twenty-two contributors comprising many eminent figures in the various medical specialities. The book consists of sixty-three chapters—the first eight of which deal with general considerations applicable to communicable diseases and the remainder with specific communicable diseases; thus, dealing with the communicable diseases of importance in Canada and the United States and omitting many of the diseases only found in the poorly developed and tropical countries. The diseases are classified by portal of entry and are arranged in alphabetical order under each class. The book contains a very complete index and glossary. The appendix contains a convenient reference of control measures for the notifiable diseases, a table of spinal fluid findings in meningitis, poliomyelitis and encephalitis, and the World Health Organization "Recommended Schedule for Anti-rabic Treatment." Not all of the diseases in the above mentioned table are notifiable in Nova Scotia and some of the other Provinces of Canada. The text is clear and concise and yet each of the diseases is dealt with in a comprehensive manner. An extensive reference table is included for each subject and there are 122 figures and fifteen color plates.

This book is probably one of the most practical ones of its kind available at the present time. It contains, for example, one whole chapter dealing with the management of communicable diseases in the hospital which is particularly valuable for hospital personnel, including physicians. All the procedures necessary for the control of hospital cross-infections are described in detail and the proper lay-out of isolation wards and private rooms are clearly illustrated. This should be invaluable to students and teachers of public health and preventive medicine as well as to hospital nursing personnel. Incidentally most of the material in this particular chapter has been published separately in booklet form by the New York State Department of Health under the title, "Guide for the Prevention and Control of Infections in Hospitals."

The book also contains a chapter dealing with the management of communicable diseases in the home which is very useful and practical. Such subjects as staphylococcal infections, adenovirus infections, poliomyelitis and the other enterovirus infections, which are of great concern to the medical and nursing professions at the present time, are all fully dealt with in the light of the most up-to-date information. Most recent knowledge concerning the diagnosis and treatment of syphilis and gonorrhoea is included. For general practitioners, internists, physicians in the field of Public Health, hospital and Public Health Nurses, student nurses and medical students, "Communicable and Infectious Diseases" by Top, fourth edition, should be a most useful and valuable handbook. It is a highly satisfactory reference book and, as a practical text, the book is up-to-date and authoritative.

H.B.C.

INFECTIOUS DISEASES—NOVA SCOTIA
Reported Summary for the Month of June, 1960

Diseases	NOVA SCOTIA 1960 C	NOVA SCOTIA 1960 D	NOVA SCOTIA 1959 C	NOVA SCOTIA 1959 D	CANADA 1960 C	CANADA 1959 C
Brucellosis (Undulant fever) (044)	0	0	0	0	14	8
Diarrhoea of newborn, epidemic (764)	0	0	7	0	8	10
Diphtheria (055)	0	0	0	0	7	2
Dysentery:						
(a) Amoebic (046)	0	0	0	0	0	0
(b) Bacillary (045)	0	0	0	0	179	46
(c) Unspecified (048)	0	0	0	0	13	12
Encephalitis, infectious (082.0)	0	0	4	0	2	6
Food Poisoning:						
(a) Staphylococcus intoxication (049.0)	0	0	0	0	0	0
(b) Salmonella infections (042.1)	0	0	0	0	0	0
(c) Unspecified (049.2)	0	0	0	0	60	54
Hepatitis, infectious (including serum hepatitis) (092, N998.5)	18	0	5	0	333	212
Meningitis, viral or aseptic (080.2, 082.1)						
(a) due to polio virus	0	0	0	0	0	0
(b) due to Coxsackie virus	0	0	0	0	0	0
(c) due to ECHO virus	0	0	0	0	0	0
(d) other and unspecified	0	0	0	0	4	24
Meningococcal infections (057)	1	0	0	0	9	14
Pemphigus neonatorum (Impetigo of the newborn) (766)	0	0	0	0	2	1
Pertussis (Whooping Cough) (056)	5	0	3	0	319	389
Poliomyelitis, paralytic (080.0, 080.1)	3	0	0	0	25	5
Scarlet Fever & Streptococcal Sore Throat (050, 051)	95	0	130	0	1242	1817
Tuberculosis:						
(a) Pulmonary (001, 002)	14	4	18	4	406	357
(b) Other and unspecified (003-019)	0	0	2	1	121	132
Typhoid and Paratyphoid Fever (040,041) (Paratyphoid—1)	0	0	0	0	23	41
Venereal diseases						
(a) Gonorrhoea— Ophthalmia neonatorum (033)	0	0	0	0	0	0
All other forms (030-032, 034)	32	0	21	0	1089	1067
(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	2	0	0	0
—tertiary — cardiovascular (023)	0	0	0	0	0	0
— " — neurosyphilis (024, 026)	1	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)	1	0	1	0	121*	182*
(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
Pssitacosis & 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	0	0
Tularaemia (059)	0	0	0	0	0	0
Yellow Fever (091)	0	0	0	0	0	0
N.S.U.	2	0	5	0	0	0

C — Cases D — Deaths

*Not broken down

C.D.C. 2

DALHOUSIE REFRESHER COURSE

1. The Course this year is from November 7th to 10th. The John Stewart Memorial lecturer is Professor D. F. Cappell from Glasgow University. This will be an evening lecture on Wednesday and preceded by a Buffet Supper in the hotel.

2. The increasingly popular Small Group Clinics will be held on three days and doctors will be given an opportunity to register in advance of the Course for Clinics they prefer. This and other information about the Course will be in your mailbox early in October.

3. The Medical Alumni of Dalhousie will hold their annual Reception, Dinner and Meeting on Tuesday, November 8th. Several Class Reunions are planned for that evening.

DALHOUSIE MEDICAL ALUMNI ASSOCIATION

2nd Annual Meeting—Nov. 8, 1960

Among the social events during Refresher Course Week, November 7-10 will be the second annual meeting of the Dalhousie Medical Alumni Association. It will be in the form of a reception—7:30 p.m. on Tuesday, November 8th in the Georgian Room at the Lord Nelson Hotel, to be followed by a dinner in the Ball Room, a short business meeting and election of officers, following which the social evening will resume. The committee looks forward to a large gathering of alumni, wives and escorts at what should prove a pleasant reunion of many of our old graduates. Plan to attend.
